



AR37

Imperial Oil
Limited

Annual Report
1980



The Norman Wells oil field, straddling the Mackenzie River about 150 km south of the Arctic circle, was discovered by Imperial in 1919 and has been in operation since 1932. The company proposes to expand operations at the field with a project that would boost production from the current 500 m³/d to a maximum of 4800 m³/d. The plan calls for a waterflood to raise reservoir pressure, increasing recovery from the field to 43 percent from today's 17 percent. Approximately 190 new wells, some located on artificial islands in the river, are to be drilled as part of this project.

Contents

Financial and operating highlights	1
Challenges and uncertainties in oil and gas by J. A. Armstrong	2
The company's performance and outlook by J. G. Livingstone	4
Operations reviews	
Natural resources	10
Petroleum products	20
Chemicals	24
The company and the community	28
Summary of accounting policies	32
Consolidated financial statements	33
Auditors' report	36
Notes to the financial statements	36
Five-year summary	44
Supplemental information	50
Directors, officers, and board committees	56
Subsidiaries, principal investments, and investor information	58

Financial and operating highlights

(1) Proved reserves do not include crude oil or natural gas discovered in the Beaufort/Mackenzie Delta or the Arctic islands. During the year, 17.7 million cubic metres were added to gross reserves (16.8 million cubic metres net), representing the reserves apportioned to the expanded Cold Lake pilot.

Late in October, 1980, the federal government introduced the National Energy Program. Among its proposals is a special tax on crude oil, natural gas, and natural-gas liquids as they are produced. The effect of this tax on the proved recoverable reserves could vary greatly depending on size, producibility, and operating costs of each field. Due to the complexity and individual nature of the calculations required, together with some degree of uncertainty as to the amount of the tax, the company has not reduced the estimates of crude oil, natural gas, and natural-gas liquids as at Dec. 31, 1980.

(2) Amounts are reported in metric units. One cubic metre (m³) is equal to approximately 6.3 barrels or 35.3 cubic feet. One hectare equals about 2.5 acres.

Financial	1978	1979	1980
	millions of dollars		
Earnings			
from operations	314	471	601
including unusual items	314	493	682
Revenues	4069	4906	6325
Funds from operations	571	907	1127
Capital and exploration expenditures	535	879	861
Dividends	124	150	201
Capital employed	2992	3751	5288
Taxes and royalties	1046	1254	1620
	percentages		
Earnings as a percentage of			
average capital employed	11.4	15.2	15.7
average shareholders' equity	15.8	21.8	21.9
Operating			
Gross proved reserves (1)			
Crude oil and natural-gas liquids (millions of m ³) (2)	217.1	200.4	198.3
Natural gas (billions of m ³)	61.2	62.0	56.7
Net proved reserves			
Crude oil and natural-gas liquids (millions of m ³)	162.8	146.9	139.5
Natural gas (billions of m ³)	37.9	42.4	38.5
Gross production			
Crude oil and natural-gas liquids (thousands of m ³ /d)	36.0	40.7	34.7
Natural gas (millions of m ³ /d)	8.9	9.8	8.2
Refining			
Crude oil processed (thousands of m ³ /d)	69.2	71.6	71.1
Refinery capacity utilization at Dec. 31 (percent)	89	93	93
Sales			
Natural gas (millions of m ³ /d)	9.7	10.4	8.9
Petroleum products (thousands of m ³ /d)	71.3	74.4	71.4
Chemicals (thousands of tonnes per day)	5.4	6.3	6.3
Shareholder information	dollars		
Per share			
Earnings	2.41	3.78	4.71
Funds from operations	4.38	6.95	7.78
Dividends	0.95	1.15	1.40

Challenges and uncertainties in oil and gas



As Imperial embarks on its second century of operations, your company should have every reason to look to the future with a confidence born of experience, know-how, and a long history of contribution to Canada. We possess in abundance both the opportunities and the capabilities to transform our successful past performance into even greater achievements throughout the next decade and beyond.

The challenges inherent in Canada's energy development are obvious. So is Imperial's ability to respond to those challenges. In terms of its experience, its expertise, its human and its financial resources, our company represents a unique asset. In addition to our extensive ongoing energy activities, a number of major new projects that result from many years of careful planning are now approaching implementation. They promise not only to continue and increase prosperity for our company but to make a critical contribution to Canada's supply of the domestic energy it so urgently needs to pursue its economic objectives.

Yet despite these manifest opportunities and capabilities, Imperial, like many other companies in the Canadian oil industry, faces an uncertain future. The reasons are well known. Many of the provisions of the 1980 National Energy Program, combined with the inability of the federal government and the oil-producing provinces to reach agreement on critical energy issues, have not only significantly slowed industry activity but threaten the very existence of some of the major projects on which Canada must depend to achieve its national goal of energy self-sufficiency.

Indeed, few aspects of the oil and gas industry are not affected adversely by the National Energy Program. The reduced incentive to maintain production from existing wells could lead to a faster-than-predicted decline in production from these sources. Plans for slowing the decline in production from mature fields by enhanced recovery technology have had to be postponed or shelved because they are no longer economic. And, again because of reduced incentives, exploration for new conventional oil in western Canada is expected to decrease appreciably. In addition, the government of Alberta has announced that it will not grant final approval to new oil-sands plants, which are vital to energy self-sufficiency, until it reaches a comprehensive energy agreement with Ottawa. But while such approval would represent a major step forward, the Cold Lake project, the cost of which has already been seriously affected by inflation, would not be commercially feasible under current federal pricing and tax proposals.

Elsewhere in this annual report, President J. G. Livingstone touches on some financial effects that the National Energy Program could have on Imperial's operations. For companies such as ours, some of the proposed measures are especially punitive. The discriminatory treatment of "foreign companies" and the confiscatory nature of some of the proposals to contribute to greater Canadianization of the industry are clear examples.

The reduction in oil demand that can be expected to result from the proposed conservation and fuel-substitution measures contained in the program—measures that deserve full support—would be overshadowed by a far more dramatic decline in domestic production. By 1990, far from achieving the self-sufficiency envisioned by the federal government, Canada could find itself relying on imports for approximately half of its oil needs.

Discouraging though such a prospect is for our industry, its effect on Canada and its economy would be little short of tragic. Apart from the obvious perils to our national security posed by such a mounting dependence on imported energy supplies, Canada would have turned its back on an immense and unique opportunity for wealth and job creation. In addition, when Canada buys oil in the world market that could be produced here at home, it increases demand for foreign oil and this works to keep prices high. This hits hardest those poorer nations with no domestic oil production.

As has been pointed out by the Economic Council of Canada and by many other concerned organizations, the energy sector offers one of Canada's few hopes for building a stronger national economy throughout the decade of the '80s. Such an economic revival, of course, would not only benefit the energy-producing provinces and the industry. The economic ripples of an aggressive program of energy development would spread to every province and to every sector of our industrial economy. Steelmaking, manufacturing, shipbuilding, and construction are but some of the industries that would benefit from a program that could see as much as \$200 billion spent on domestic Canadian oil and gas development during the eighties.

If one recognizes that the National Energy Program stems from a genuine concern on the part of the federal government to restore Canada to a position of energy self-sufficiency, one must also recognize the inescapable fact that, as currently constituted, the program cannot achieve that objective. The evidence mounts daily that, far from encouraging increased hydrocarbon production, the program is having just the reverse effect.

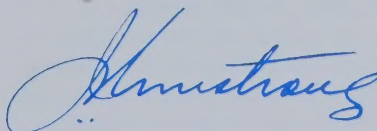
Although the oil industry is most affected by the new program, its reservations are shared by many outside the industry. Spokesmen for many sectors of the Canadian economy have voiced mounting concern at the serious implications that the program, and the attendant stalemate between Ottawa and the producing provinces, hold for the country as a whole.

I believe that such serious misgivings coming from such responsible quarters must persuade all the governments concerned to return to the negotiating table as quickly as possible and to arrive at a long overdue agreement on energy pricing and revenue sharing that is fair and equitable to all parties, including the oil industry. I also believe the federal government must recognize that its energy program will require substantial revision if it is to achieve our national objective of self-sufficiency and that the necessary changes should be implemented without delay.

In particular, immediate steps should be taken to restore the economic feasibility of those projects, such as oil-sands developments, that offer Canada's best hope of increasing oil production in the medium term. I would hope that such changes would also reflect the realization that measures that discriminate against a number of the country's largest oil companies are counter-productive and can seriously impair the attainment of our national energy goals. In brief, I believe that the paramount necessity of increasing domestic hydrocarbon production should take priority over all other aspects of the program.

In areas of our company's operations less affected by the federal government's new energy program, the future remains very promising. The continued growth of our operations in petroleum products, chemicals, and minerals provides every hope for the future prosperity of these segments of our business and for a continuing increase in their contribution to overall company earnings.

In its first 100 years, Imperial weathered many severe economic difficulties. I am confident that we can weather the current temporary uncertainties with equal success and that our growth and our contribution to Canada's economic development will continue undiminished.



J. A. Armstrong
March 2, 1981.

The company's performance and outlook

Performance

I am proud to report that Imperial Oil's centennial proved to be a banner performance year for your company. Once again, Imperial had outstanding results in a number of areas and set a record for consolidated earnings. During 1980, Imperial also issued new equity, the largest such issue in Canadian business history, demonstrating strong shareholder support and placing the company in an excellent position to pursue new investment opportunities in the coming years.

Consolidated earnings achieved a record high in 1980 of \$682 million, compared to \$493 million in 1979 and \$314 million in 1978. Earnings per share were \$4.71, compared with \$3.78 in 1979 and \$2.41 in 1978. The company's return on average capital employed rose to 15.7 percent in 1980 from 15.2 percent in 1979 and 11.4 percent in 1978.

Dividends paid in 1980 totalled \$1.40 per share. This represented an increase of 22 percent over 1979 dividends of \$1.15 and an increase of 47 percent over 1978 dividends of 95 cents per share.

Consolidated earnings included a one-time, non-cash increase in net earnings of \$81 million, after income taxes of \$45 million, resulting from the Alberta Petroleum Marketing Commission's decision to purchase, at the wellhead, crude produced from provincial Crown leases in Alberta. In 1979, a non-recurring gain of \$22 million was realized when the Alberta Energy Company Ltd. exercised its option to purchase 20 percent of the participants' interest in the Syncrude project.

An outstanding performance for the year was turned in by petroleum products, which set a new earnings record for that segment. Earnings from petroleum products reached \$310 million in 1980, an increase of \$134 million over 1979 earnings of \$176 million, and \$235 million more than 1978 earnings of \$75 million, representing an improvement over the low and unsatisfactory earnings that had persisted for a period of two decades.

The earnings improvements in petroleum products in 1978, 1979, and 1980 were achieved largely as a result of stronger prices in all markets. A four-percent increase in total sales volumes in 1979 also contributed to the growth in earnings. The earnings increase in 1980 was achieved despite a decrease in total sales volume. A sales emphasis on higher-value products, improvements in our refineries' flexibility to use a variety of crude oils while efficiently producing a range of products that meet changing market demands, and efficiency programs to improve energy use and reduce unit costs were contributing factors.

The centennial also proved to be an outstanding year for chemicals. Earnings increased to record levels, reaching \$81 million, compared with earnings of \$68 million in 1979 and \$20 million in 1978. Esso Chemicals' performance in both 1980 and 1979 resulted largely from improved prices and margins for petrochemical products and from operating efficiencies. Sales volumes of petrochemicals rose in 1979

and 1980. Volumes of agricultural chemicals showed gains in 1979 but declined in 1980 due to weather factors.

In the development of natural resources, earnings of \$184 million in 1980 showed a decline from the \$215 million reported in 1979, which was below the record level of \$220 million in 1978. This disappointing trend reflects a number of factors. The industry as a whole is experiencing declining production from depleting fields and market limitations on sales of natural gas. Of these factors, declining production and consequent higher costs have been affecting the company most. They are offset only partially by the company's share of higher prices for oil and gas.

The highlight of the year in the natural-resources segment was Syncrude's record production of 12 840 m³/d, resulting in a contribution by Syncrude of \$60 million to Imperial's net earnings. In 1980, the exploration program resulted in a number of oil and gas discoveries, both at Issungnak in the Beaufort Sea and in the southern basin of Alberta and British Columbia.

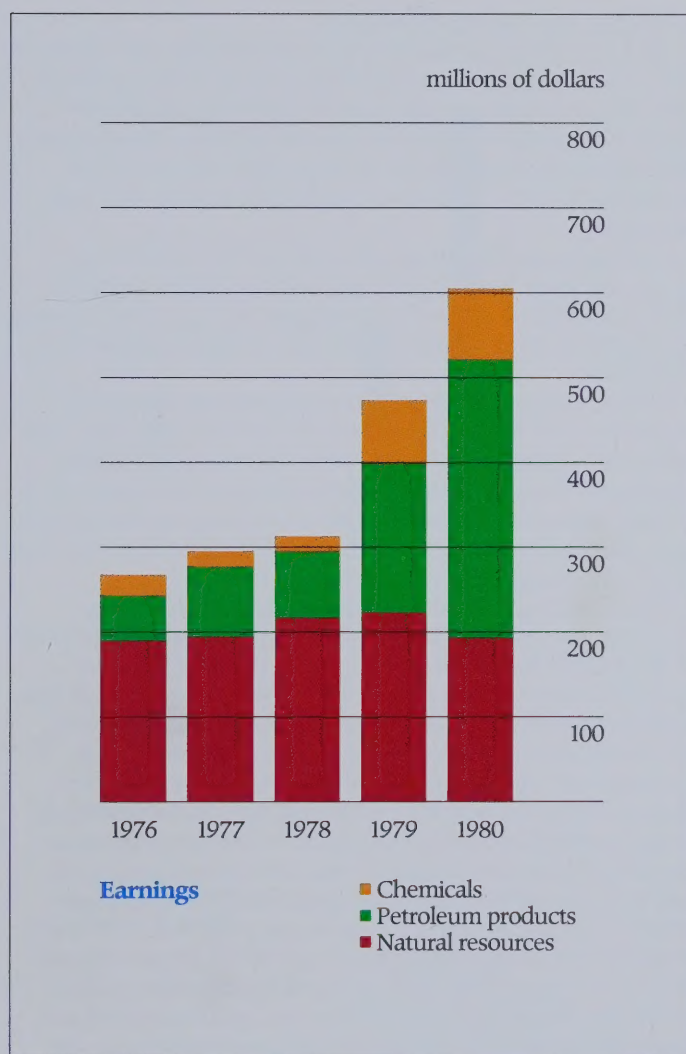
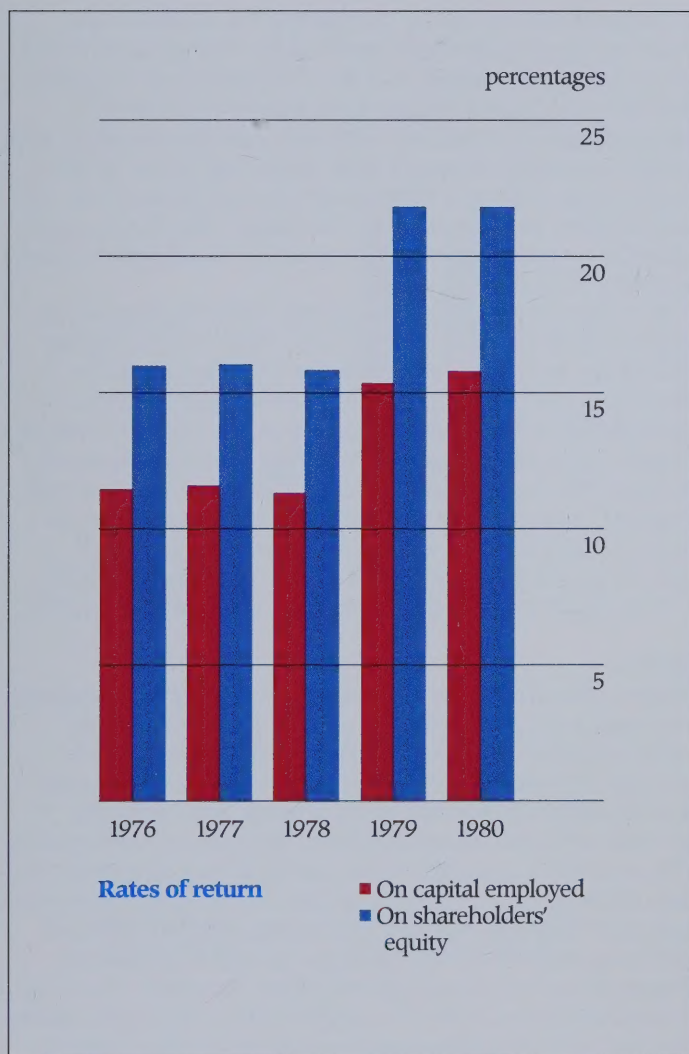
Inflation

The high rate of inflation and changes in prices experienced in recent years are not reflected in the consolidated earnings, which are based on conventional measurements. On page 50, a report of the negative effect of inflation and changing prices on actual financial performance is presented. Although it is experimental and the calculations are subjective, it indicates the direction of these effects. Based on the current cost of replacing fixed assets and inventories, the reported earnings for 1980 would be reduced from \$682 million to \$216 million. The return on average capital employed, conventionally reported at 15.7 percent for 1980, is reduced to 3.2 percent under current-cost methodology.

Corporate investments

Imperial's expenditures for capital and exploration in 1980 were \$861 million, a slight decrease from 1979. Capital expenditures in the petroleum-products segment amounted to \$111 million. Much of the investment was made to save energy and improve product yield in refinery operations as well as to further increase efficiency in marketing and distribution. An application to expand significantly the capacity of Imperial's Strathcona refinery was approved in February, 1981.

Esso Chemical Canada continued with its expansion program in 1980, taking advantage of Canada's lower cost of feedstock and security of hydrocarbon supply, particularly natural gas. An application to construct a nitrogenous-fertilizer plant at Redwater was approved by the Alberta Cabinet. Construction is under way on a major expansion of the phosphate-fertilizer facilities at Redwater. Another application was submitted to the Alberta Energy Resources Conservation Board on behalf of the joint venture between Esso Chemical Canada and the Alberta Energy Company Ltd. to add a styrene plant to their previously approved aromatics project.



Engineering also continued on the proposed world-scale plant to produce low-density polyethylene and the expansion of the polyvinyl-chloride plant at Sarnia. The chemicals segment of Imperial Oil Limited, already a leading Canadian chemical company, shows strong growth prospects for the future.

Capital and exploration expenditures in natural resources continued at 1979's high levels. These were directed to greater exploration for crude oil in western Canada and the Arctic and in investment in expansion of the Cold Lake pilot oil-sands plant. Unfortunately, future investment in oil and gas development is likely to be less than previously expected, as many possible investments, including the Cold Lake project, have become less attractive as a result of the National Energy Program.

Investment in mineral exploration and development moved ahead during the year. Operations were begun by Esso Minerals in 1979 at the company's lead-zinc mine at Gays River, N.S. and in 1980 at the Granduc copper mine near Stewart, B.C., which was purchased the previous year. Operating problems at the Gays River mine have prevented the operation from attaining expected production rates. Significant new mineral investment is planned for the future.

The company's performance and outlook

(continued)

Liquidity and capital resources

Imperial Oil possesses an excellent capital base with which to proceed on major investment projects in the coming decade. The company has a strong internal cash flow; in 1979, it raised \$292 million through a debt issue and, in 1980, raised \$858 million in an equity issue. Imperial's year-end funds amounted to \$955 million and its debt-to-equity ratio was favorable.

Cash generated from natural resources in 1980 was at about the same level as 1979, and slightly higher than the 1978 level. Higher prices for oil and gas did not offset entirely the higher costs of operating oil fields in which production is declining.

In recent years, the petroleum-products and chemicals segments have made a larger contribution to cash flow. This was particularly true in 1980, as firmer prices and greater operating efficiencies improved margins and cash generation. In both segments, major amounts of working capital are tied up in receivables because of price increases and in inventories due to the increasing cost of raw materials.

Future cash generation is expected to remain strong. However, the proposed National Energy Program, introduced in the federal budget of Oct. 28, 1980, will, if fully implemented in its proposed form, impair the company's cash flow and earnings from the production of conventional oil and gas in 1981. It is still too early to predict accurately what the long-term impact of these measures will be, but short-term investment plans for exploration and development are being modified. A number of aspects of the program cause concern. A sales tax on natural gas and natural-gas liquids and a tax on net revenues from production of oil and gas, which is not deductible for income-tax purposes, have been levied on the industry. Many features of the former federal depletion system have been replaced by incentive grants, which are available predominately to Canadian owned and controlled companies. Finally, the program reserves to the federal government a 25-percent interest in Canada lands. At the same time, the National Energy Program establishes a schedule for future increases in the price of crude oil and sets a maximum blended price for crude oil at 85 percent of the international price or the price in the United States, whichever is less.

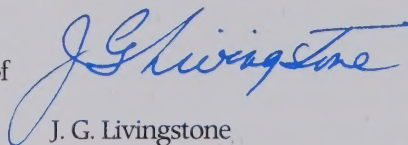
Total capital and exploration spending is expected to continue at high levels during 1981. Despite the concerns posed by the National Energy Program for the development of oil and gas, the company plans to increase investment in petroleum products and chemicals. Consolidated earnings should remain strong, although the earnings trend of the past three years cannot be expected to continue into 1981.

A related concern of the company is the serious impact that a continuing deadlock between the federal and Alberta governments, combined with the National Energy Program, will have on Canada's longer-term supply of crude oil. Oil-sands plants, including Cold Lake, have been delayed and put into question. Marginal wells producing conventional crude oil are in danger of being abandoned prematurely due to the higher taxation rates of the budget. And the economic attractiveness of tertiary recovery projects has been seriously impaired or eliminated.

As a result of these factors, Canada will be exposed to an unnecessarily large dependence on foreign crude supplies and a large increase in payments for imported oil. At the same time, offshore crude-supply patterns are shifting to increasingly heavy crudes containing more sulfur. At present, Canada lacks the facilities for handling significant amounts of heavy crudes. This growing dependence on less desirable imported heavy crudes will not only expose Canada to an unnecessary risk in oil supply but seriously compound refinery problems. Imperial is studying how best to modify refinery facilities to upgrade these less desirable feedstocks.

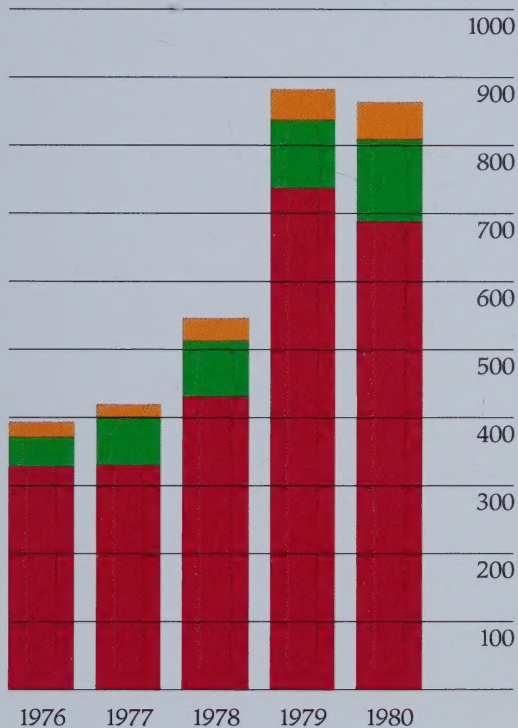
Outlook

Despite uncertainties in the outlook for energy development and supply in Canada, there are many positive signs and many attractive investment opportunities. These include selected exploration and production programs, the production expansion at Norman Wells, refining and marketing investments, new chemical projects, and mining development. The company's expected future cash flow should provide the base for these future operations. Our current debt/equity mix and other financial indicators, including access to external financing, show that Imperial is in a favorable position to finance these investment opportunities. Therefore, I have no doubt that Imperial Oil will continue to be a successful, attractive, and profitable growth investment for its shareholders.



J. G. Livingstone
Mar. 2, 1981.

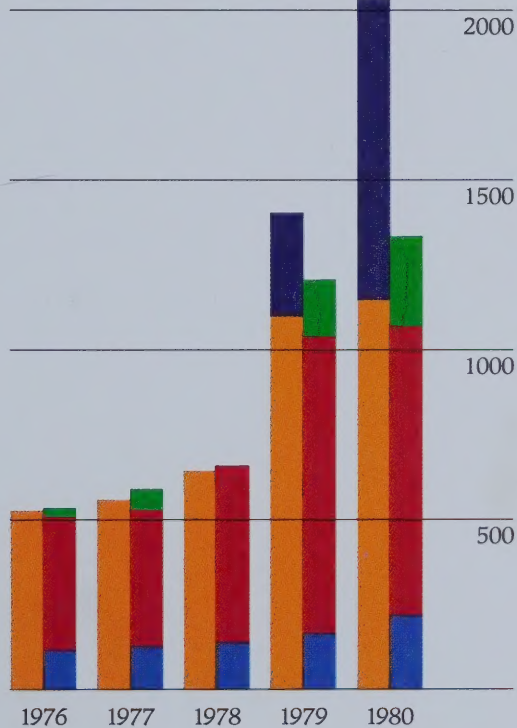
millions of dollars



**Capital and
exploration
expenditures**

■ Chemicals
■ Petroleum products
■ Natural resources

millions of dollars



**Sources and
uses of funds**

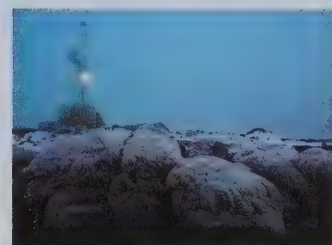
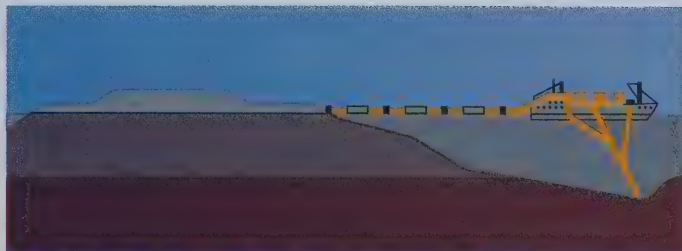
Sources of funds
■ External
■ Internal
Uses of funds
■ Increase in working
capital other than funds
■ Capital and exploration
expenditures
■ Dividends and debt
reduction

Exploration in the Arctic

One of the best hopes for major additions to Canada's conventional supplies of oil and gas lies in the regions of the Mackenzie Delta and the Beaufort Sea in the northwestern Arctic. The Geological Survey of Canada places potential reserves at 1430 million cubic metres of oil—the equivalent of all the oil so far produced in Canada—and 3100 billion cubic metres of natural gas—equivalent to three times the volume produced to date. The major challenge is developing these remote resources under the extremely severe climatic conditions that prevail for much of the year.



The company is very active in this region, holding permits to about 2.5 million hectares, two-thirds offshore in the Beaufort Sea and one-third in the Mackenzie Delta. To make year-round drilling possible despite nine months of ice up to seven metres thick, the company pioneered drilling from artificial islands, dredged from the shallow sea bottom. Issungnak Island, seen here, is the company's 15th and largest such island, completed in 1980 at a cost of \$60 million. Oil and gas were discovered here in June of 1980.



Waves and shifting ice constantly gnaw at the island. The ice-caked "boulders" seen here are actually some of the thousands of sandbags set along the shoreline to ward off the encroaching sea.

It took three successive summers to move nearly five million cubic metres of sand to build Issungnak Island, some 38 km offshore in water 18 m deep. The dredge ship pumped the sand through a pipeline 800 m long to the site, creating a mound with 95 percent of its mass under water. The island's base is six times the diameter of its working surface, which is 135 m across. It houses a 70-man crew, along with the drilling rig and all its supplies and equipment.

Financial and operating summary, 1980

Earnings from operations in 1980 declined by \$41 million from 1979 results due to a reduction of 18 percent in production of conventional crude oil and increases in operating costs of \$63 million as the fields became further depleted. Production of natural gas also declined by 16 percent in association with oil production and as a result of market limitations.

The decline in operating earnings was partially offset by earnings from Syncrude, which operated favorably for the last nine months and produced 72,840 m³/d of upgraded crude oil, of which the company's share was 5710 m³/d.

Expenditures on exploration for oil and gas decreased to \$387 million in 1980. Expenditures to increase or maintain production from existing fields increased to more than \$130 million.

Oil and gas was discovered at Issanuk in the Beaufort Sea and an exploration well to follow up this discovery was started.

Fifty-two new conventional exploratory wells, 38 of them successful oil and natural-gas wells, were completed in the western provinces, mainly in the Athabasca area.

An application was made to increase production by 4,000 m³/d to almost 3800 m³/d at Norman Wells, N.W.T. In addition, Interprovincial Pipe Line (NW) Limited made application to the National Energy Board for a pipeline to connect the field with southern markets.

Engineering and design work continued on the Cold Lake project. Cost of this work in 1980 was \$68 million, including \$62 million expense in earnings. The project has been delayed pending final approval by the Alberta government and agreement on satisfactory economic terms.

A \$54-million expansion of the pilot operation at Cold Lake was completed to increase production capacity from 1200 m³/d to 2,225 m³/d.

Initial production of copper concentrate began at Granduc, near Stewart, B.C.

Financial and production statistics	1979	1980	Percent increase (decrease)
Financial	millions of dollars		
Earnings	215	184	(14)
Revenue	1031	1201	16
Capital and exploration expenditures			
Oil and gas			
Capital	253	226	(11)
Exploration	434	387	(11)
Minerals	50	69	38
Capital employed	1725	2206	28
Gross production	thousands of m ³ /d		
Crude oil and natural-gas liquids			
Conventional	37.5	30.6	(18)
Syncrude	2.2	3.2	46
Cold Lake pilot	1.0	0.9	(10)
Total	40.7	34.7	(15)
Mineral concentrates	tonnes per day		
Gays River	—	34	—
Granduc	—	34	—
Total	—	68	—
Natural gas	millions of m ³ /d		
Gross production	9.8	8.2	(16)
Gross sales (1)	10.4	8.9	(14)

(1) Sales to outside customers include purchases of natural gas for resale.

The company explores for and produces crude oil, natural gas, and natural-gas liquids, develops deposits of heavy oil and upgrades crude from them for refining, and explores for and develops copper, lead, zinc, coal, and other minerals. These operations are carried on through Esso Resources Canada Limited, a wholly owned subsidiary based in Calgary.

Oil and gas drilling summary	1979	1980	Percent increase (decrease)
Exploration expenditures	millions of dollars		
Western provinces	342	321	(6)
Canada lands			
Beaufort/Mackenzie Delta, Northwest Territories, and Yukon Territory	34	53	56
Arctic islands	5	7	40
Atlantic offshore	53	6	(89)
Total	434	387	(11)
Exploration wells (1) drilled—net	oil	gas	dry
Western provinces			
Elmworth	—	13	—
Cold Lake, Athabasca, Peace River (2)	—	—	40
Other	3	19	15
Canada lands			
Beaufort/Mackenzie Delta, Northwest Territories, Yukon Territory, Arctic islands, and Atlantic offshore	1	—	—
Total—net (3)	4	32	55
Total—gross (4)	11	113	104
Development wells drilled—net (3)	67	15	6
—gross (4)	109	51	11

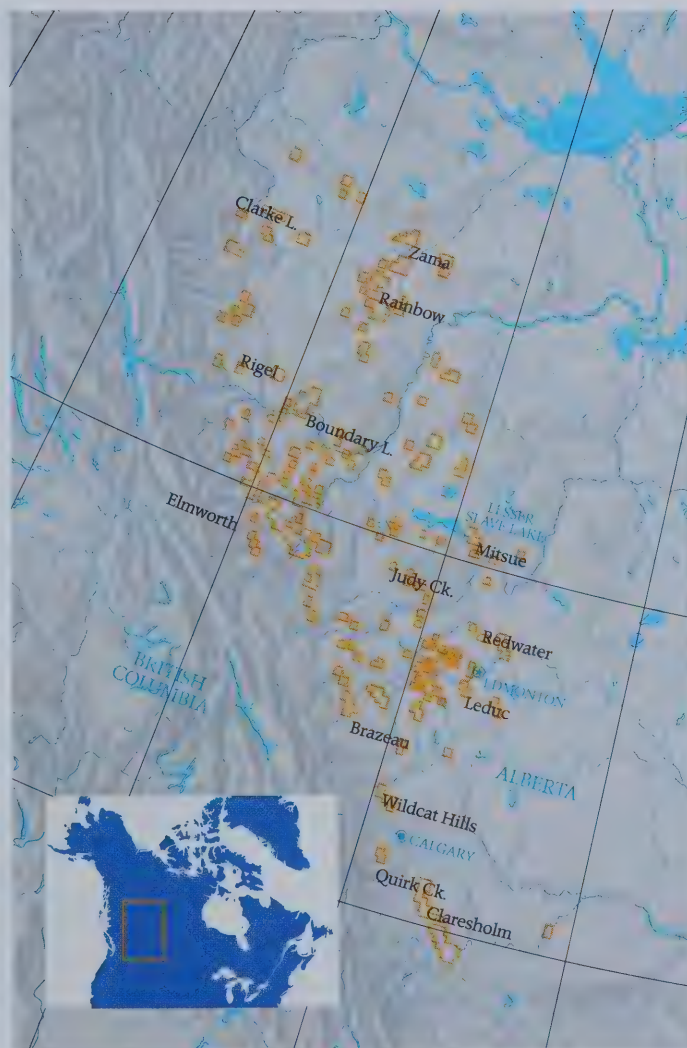
(1) The designation as oil, gas, or dry is preliminary and does not necessarily reflect the ultimate classification for financial reporting purposes.
 (2) Wells drilled for oil-sands evaluation.

(3) Net: the number of wells after the interests of others have been deducted.

(4) Gross: the total number of wells in which the company has an interest.

Operating environment

Canada's production of crude oil is declining while demand remains high. Increasing imports of oil are needed to meet this demand. Canada has the potential to meet all demand from domestic sources by the early 1990s although the future availability of domestic supplies of oil and gas will depend on a resolution of the federal-provincial dispute on



**Western provinces
Oil and gas holdings**

□ Company-interest holdings

prices and sharing of revenues, and on a more stable business environment. This is particularly true for oil, since the development of oil-sands plants is a critical factor in achieving self-sufficiency, and plans for such plants cannot proceed in an uncertain business environment.

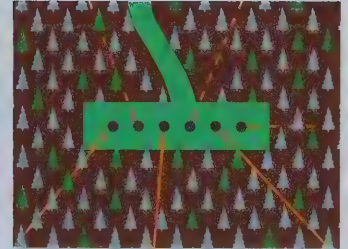
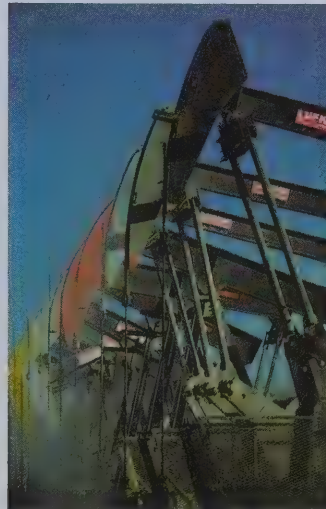
Four aspects of the federal budget and the National Energy Program announced on Oct. 28 have significant implications for the company's operations in the development of natural resources: the low prices for oil and gas, the eight-percent tax on revenues after operating costs from production of oil and gas, the replacement of tax incentives with selective grants based on the degree of Canadian ownership, and regulations regarding production of oil and gas from Canada lands.

The Cold Lake project

Alberta's oil sands contain an estimated 152 billion cubic metres of heavy oil, but only a fraction of it is recoverable using today's technology. Even beginning to tap this vast resource has taken more than 20 years of research and development and hundreds of millions of dollars in high-risk investments. In the Athabasca region, where the deposits are near the surface, open-pit mining methods have been applied. But at Cold Lake, the sands lie at depths averaging 500 m, too deep for mining. To tap them, the company has developed special steam-injection techniques.



The company's proposed Cold Lake project, which would recover more than 230 million cubic metres of bitumen, is one of the largest and costliest ever undertaken anywhere by private industry. Estimates for carrying the project to completion are now in the range of \$12 billion. Pilot projects leading to today's design began in 1964 and have since consumed about \$164 million in operating and investment costs. The overall output of the pilot-plant operations is expected to be more than 2220 m³/d late in 1981.



Less than five percent of the 14 000-hectare surface over the producing zone will be affected by the drilling of some 8000 wells, because they will be grouped in clusters of 20 or more in a single location. By means of "directional drilling," each well is angled to tap a different part of the area around the cluster. The production process begins by injecting steam into each well for about a month. Then the wells revert to the pumping mode, extracting the warmed bitumen and piping it to a central plant for processing into light upgraded crude. This cycle is repeated as often as necessary.

Natural resources

(continued)



**Beaufort/
Mackenzie Delta**

- Company-interest holdings
- Holdings of others
- ★ Gas
- Oil
- ★ Oil and gas
- Drilling location
- Suspended

As a result of the low wellhead prices and higher taxes introduced in the National Energy Program, previously planned exploration and production investments have become less attractive. Coupled with an expected reduction in the company's anticipated 1981 cash flow and the lower earnings from production of oil and gas now expected, this has forced the company to re-examine its future investment programs. Although the company can still see important investment opportunities in oil and gas, its program will be smaller and more selective than previously anticipated. In the longer term, the factors influencing decisions on investments in energy supply may change to encourage the development of resources to meet the country's energy needs.

In its modified submission to the National Energy Board in December, the company concluded that the National Energy Program would have little impact on demand as originally forecast but could seriously reduce supply from Canadian sources. As a result, the company believes the reliance on net imports of crude oil and products could be as great as 100 000 m³/d in 1985, a figure that is at variance with the federal government's forecast of 41 000 m³/d in that year.

Exploration

Western provinces

During 1980, the company's drilling program extended from northern British Columbia to southern Saskatchewan. Most of the activity was in the Elmworth area, where the company was associated with Canadian Hunter Exploration Ltd. and Sulpetro Limited, and in southwestern Alberta in association with Sundance Oil Canada Ltd. The results are shown in the following table.

Major farm-in operations	1979	1980
Canadian Hunter Exploration Ltd.		
Amount committed (millions of dollars)	147	160
Amount spent to Dec. 31 (millions of dollars)	119	160
Wells drilled-net: total	15	24
dry	2	2
Sulpetro Limited		
Amount committed (millions of dollars)	32	32
Amount spent to Dec. 31 (millions of dollars)	—	13
Wells drilled-net: total	—	1
dry	—	—
Sundance Oil Canada Ltd.		
Amount committed (millions of dollars)	70	70
Amount spent to Dec. 31 (millions of dollars)	46	70
Wells drilled-net: total	—	12
dry	—	3

Canada lands

In the spring of 1980, the company discovered light gravity, sweet crude oil at Issungnak, 80 km northwest of Tuktoyaktuk, which flowed at a calculated rate of 380 m³/d. Gas and condensate were tested in two other zones and flowed at calculated rates of 394 000 m³/d and 141 000 m³/d. A second well was begun at the same location in October. The company has a 50-percent interest in this venture, subject to reduction under legislation proposed by the federal government. During 1980, an artificial island was constructed at Alerk, 60 km southeast of Issungnak, for possible drilling in 1981.

In 1980, the company recorded about 5000 km of seismic surveys in the Atlantic offshore, 160 km east of the Hibernia discovery. This program is part of a technical evaluation of prospects for drilling in the Flemish Pass area after 1981.

The company participated with the Arctic Islands Exploration Group in a successful follow-up well at Whitefish, where a discovery was made in 1979, and at Char which flowed gas and indicated the presence of oil. The company plans to participate in drilling three more wells in this area in 1981.

Oil and gas production and sales

Most of the capital expenditures in this area of operations were made to optimize production and control increases in unit costs in older fields.

Re-evaluation of the Norman Wells field has shown that installing a waterflood and drilling more wells can increase production from the 1980 level of about 500 m³/d to almost 4800 m³/d. The federal government has a carried interest of 33½ percent in Norman Wells. A necessary adjunct to the plan is a pipeline proposed by Interprovincial Pipe Line (NW) Limited to carry the increased oil output, together with natural-gas liquids and reduced crudes, south to an existing pipeline network.

During the year the company continued engineering studies to evaluate the feasibility and economics of a plan to enhance oil recovery at the Judy Creek field, using carbon dioxide as a solvent. A combination of new information about reservoir conditions, cost escalations, and the low prices forecast in the National Energy Program caused the company to suspend further work on this project.

Sales of natural gas fell 14 percent below the 1979 levels, due mainly to a decrease in demand in the United States, although domestic sales were also slightly lower than they were in 1979. Some of the company's reserves of natural gas are shut in awaiting marketing opportunities.



Atlantic coast offshore

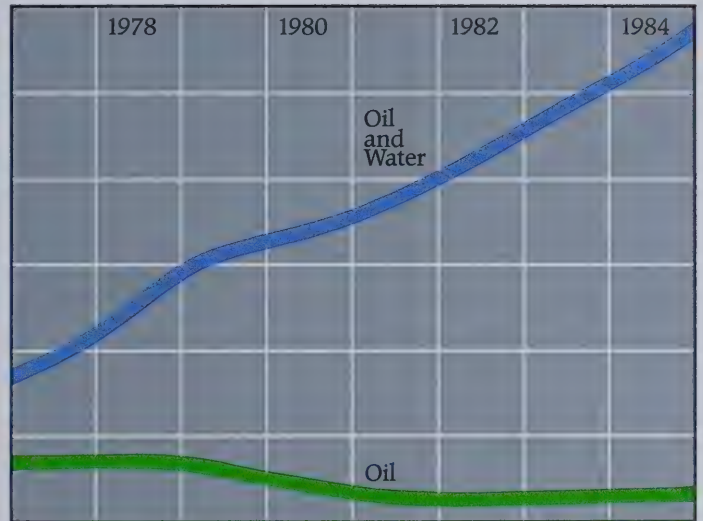
- Company-interest holdings
- Holdings of others
- ★ Gas
- Oil
- Suspended
- Dry hole

Operations in oil and gas

Canada's established reserves of conventional crude oil and natural gas are at a relatively mature stage of depletion; about 60 percent of these oil reserves have been produced to date. In 1980, the oil and gas industry continued to invest heavily to maintain productivity from these reserves by upgrading and replacing existing facilities and adding new ones. These "sustaining investments" are required to produce the greatest volumes of oil and gas from established fields under the most effective operating conditions.



In 1980, the company spent about \$130 million on such sustaining investments in established fields. At Judy Creek, Alta., where approximately 70 percent of the established reserves of crude oil have been produced to date, the company continued to upgrade the Judy Creek gas plants (below), to drill additional infill wells, and to expand facilities for handling water.



The amount of water being produced with oil is having an increasingly significant impact on the company's operations. As this diagram shows, the amount of water relative to oil has increased greatly over the past few years and is expected to

continue to increase in the future. The increasing amounts of water produced with oil require additional facilities to lift and process it. At Judy Creek, more than 95 percent of the producing wells are on artificial lift.

Glittering aluminum protects the insulation on new equipment installed in 1980 to "sweeten" natural gas at the Judy Creek gas-processing plants by removing corrosive hydrogen sulfide before delivering the gas to pipelines.



Natural resources

(continued)



Arctic islands

- Company-interest holdings
- ⊛ Gas
- Dry hole

Syncrude operations

The Syncrude project, in which the company has an interest of 25 percent, shipped an average of 12 840 m³/d of upgraded crude oil in 1980. Design capacity is 17 000 m³/d. Performance set records in the final nine months of the year, not only in processing, but also in mining and extraction, and all components demonstrated their ability to operate at design capacity. Operating problems with processing units in the early part of the year were overcome with the help of a special team of engineers and operators assembled by the project's management.

In the last half of December, 1980, an explosion and fire shut down the hydrogen-compression equipment, which will reduce production until they can be replaced or repaired. Following this delay, Syncrude management shut down one of the two trains for maintenance and modifications that had been scheduled for March, 1981.

The Cold Lake project

Since 1964, the company has spent \$164 million on preliminary studies, project development, and site preparation for a project to produce 22 200 m³/d of the heavy oil at Cold Lake, Alta. The project is estimated to cost \$12 billion, which is higher than previous estimates primarily because inflation is increasing faster than the rate forecast in 1978, because of extensions and delays in the schedule, and because of additional facilities. The company will need others to participate in the total investment.

In November, the company proposed that the Alberta and federal governments should pay ongoing development costs of the Cold Lake project resulting from the delay while they continued their discussions on prices and sharing of revenues. Following this proposal, the federal government announced that it would loan up to \$40 million to keep the project's engineering and design specialists on the job while negotiations continue. The amount is repayable with interest only if the company proceeds with the project.

Two pilot plants are in operation testing various recovery methods. During 1980, the company completed an expansion of one pilot at a cost of \$54 million to increase production capacity from 1200 m³/d to 2225 m³/d.

Minerals

Through Esso Minerals Canada, the company explores for minerals and develops and operates mines. A significant exploration program for coal, base metals, uranium, and precious metals was continued in 1980 and a number of leads warrant follow-up activity.

During 1980, the company agreed to purchase Byron Creek Collieries Limited, which is located in southeastern British Columbia and produced 900 000 tonnes of thermal coal in 1980. This acquisition was approved by the Foreign Investment Review Agency in January, 1981. The company is considering an expansion of production to 3.6 million tonnes per year by 1985 if sufficient reserves are found and sales contracts are secured.

The company holds an interest of six percent in Quintette Coal Limited, which holds coal leases in northeastern British Columbia, and has the right to earn up to 16.75 percent. Quintette has plans for a project that would produce about six million tonnes of coal per year in approximately four years after start of construction.

The company held, or had applied for, 390 000 net hectares of coal leases in Alberta and British Columbia at the end of 1980. An exploration and delineation program is continuing to evaluate this resource.

The company's first operation in minerals—a mine and mill for the lead-zinc project at Gays River, N.S.—started up in November, 1979, and operated throughout 1980. Its production of ore was processed into concentrates for export although severe water seepage prevented the operation from achieving expected production rates.

The company acquired the former Granduc underground copper mine near Stewart, B.C., in May, 1979, rehabilitated it at a cost of \$50 million, and began operations in October, 1980. Annual production, which will be exported, is planned to be 1.3 million tonnes of ore grading 1.63 percent copper before concentration.

Plans for the uranium discovery at Midwest Lake in northern Saskatchewan are under study, with market outlets being sought for the uranium produced. The company has a 50-percent interest in this property.

Renewable energy resources

During 1980, the company spent \$1.1 million on studies of renewable energy sources. The main emphasis was on solar heating, with experimental solar water-heating systems installed at the Sarnia research laboratory and at a distribution terminal in Toronto. The University of Calgary has designed a solar research facility for the roof of the new Esso Resources headquarters building in Calgary.



Western provinces
Oil-sands holdings

Company-interest
holdings

Financial and operating summary, 1980

Earnings from operations in petroleum products increased by \$134 million to \$310 million in 1980 as a result of higher prices, a more profitable product mix, and a significant improvement in operating efficiencies.

The earnings increase was achieved despite a decrease of four percent in total volumes sold.

Capital expenditures of \$111 million were made to reduce energy consumed in operations, to improve the product yield at refineries, and to further increase efficiency in marketing and distribution.

An application to expand the capacity of the refinery at Strathcona, Alta., by 8900 m³/d to 32 200 m³/d received the Alberta government's approval in February, 1981.

Financial and operating statistics	1979	1980	Percent increase (decrease)
Financial	millions of dollars		
Earnings	176	310	76
Revenues	4163	5034	21
Capital expenditures	102	111	9
Capital employed	1506	1786	19
Operating	thousands of m ³ /d		
Sales of petroleum products			
Gasolines	28.0	27.8	(1)
Middle distillates	23.6	22.7	(4)
Heavy fuel oils	7.6	6.5	(15)
Lubricants, greases, specialty oils, and other	15.2	14.4	(5)
Total	74.4	71.4	(4)
Refining			
Crude oil processed	71.6	71.1	(1)
Refinery capacity utilization at Dec. 31 (percent)	93	93	—

Imperial's operations in petroleum products include the manufacturing, distribution, and marketing of refined petroleum products and the sales of related products and services.

Operating environment

The volumes of petroleum products sold in 1980 decreased by four percent from 1979 total volumes, particularly in heavy fuel oil and home heating oil, which declined due to conservation, to the substitution of natural gas for oil in home heating, and to reduced economic activity.

The Canadian petroleum-products industry is entering a period of significant change. While total demand is not expected to decline significantly during the next few years, demand for heating oil and heavy fuel oil will decline rapidly in eastern Canada as consumers switch to natural gas and electricity. The demand for motor gasoline is also expected to decline as prices rise and automobile efficiency improves. The shift to unleaded grades will continue, as will growth in sales of diesel and jet fuels. In western Canada, the demand for most petroleum products continues to grow with the pace of natural-resource development.

During the 1980s, the supply of light crude oil from western Canada will decline and refiners in Quebec and the Atlantic provinces will use increasing volumes of imported crude oils that are heavier and contain more sulfur. In order to supply products in the volumes consumers will need from these crudes as well as to upgrade the heavy residual oils for which markets are diminishing, the refining industry will have to make new investments in upgrading equipment. The concept of an industry upgrader is being considered for eastern Canada.

New desulfurizing facilities started up at the Dartmouth refinery, enabling the company to process Arabian and Mexican crudes that are high in sulfur.

Refining operations

To meet demand in western Canada, the company plans to increase the capacity of the Strathcona refinery, just east of Edmonton, by 8900 m³/d. An application for this expansion was approved in February of 1981. Construction is planned to be in three phases, extending through to 1986. The first phase would enlarge capacity by 3100 m³/d and increase production of jet fuel and cold-temperature diesel fuels. The second phase would double the capacity to produce asphalt from Cold Lake bitumen to 2000 m³/d. The third phase would expand capacity by a further 4800 m³/d by adding facilities specifically designed to process upgraded crudes from the Alberta oil sands.

Discussions between Petro-Canada and the Mexican state oil company for the direct supply of 7950 m³/d of Mexican crude oil were concluded during 1980. Of this amount, 1410 m³/d was allocated for delivery to Imperial.

In 1980, the company signed a one-year contract with the Venezuelan state oil company for the supply of 7150 m³/d of Venezuelan crude oil. Negotiations to extend the contract for another year were completed in February, 1981.

Marketing

The marketing activities of the company continued to emphasize the reduction of operating costs and the efficient servicing of customer needs with quality products. In 1980, a greater percentage of higher-value products such as gasoline and diesel fuels was sold through Esso outlets at better margins. The increased profitability from these activities was partly offset by the reduction in sales of products of lower value such as heating fuels.

Major changes in the company's network for distributing products from refineries to sales outlets continued. This \$3.4-million program will provide larger and more productive distribution terminals but fewer of them. The company spent \$1.4 million on this program in 1980. To further improve efficiency in product distribution, microprocessing equipment is being installed in distribution terminals across Canada. This equipment improves control of inventories, speeds up invoicing to provide faster turnaround of working capital, eliminates some time-consuming manual operations, and centralizes some delivery operations.

Work on a new \$5-million distribution centre for packaged products continued at Edmonton. This new centre will open early in 1981. It will be more efficient in handling the larger volumes of lubricants being sold in western Canada.

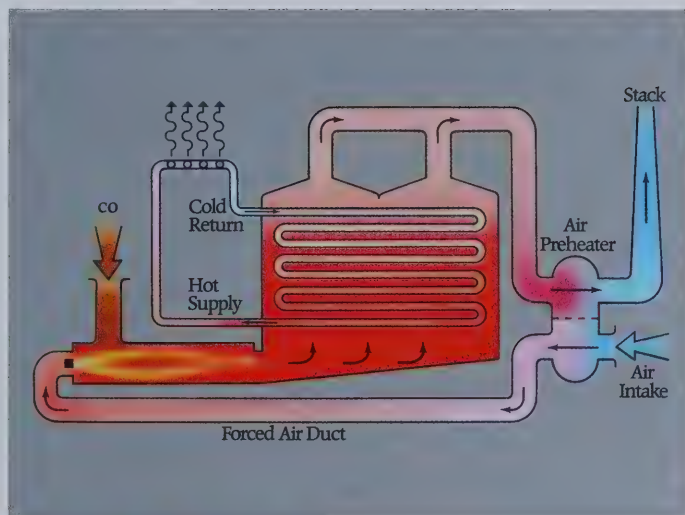
New products were introduced to the market. Imperial's research developed, among others, "ESSOLUBE XD 3," a lubricant designed for diesel engines that reduces power loss and saves fuel, and "Nuto H," a universal grade of hydraulic oil for use in a wide range of pumps.

Refinery investments

As oil from new and different sources comes into production, it makes new demands on refineries. Heavier crudes and synthetics are replacing light conventional crudes in larger quantities and these reduce the flexibility of conventional refining facilities. At the same time, refiners must adjust product mixes to the needs of a changing market. Achieving the necessary flexibility to cope with a greater variety of crudes and changes in product mix requires a major program of refinery upgrading and investments. New process technology is also being applied to improve operating efficiencies.



Imperial spent \$75 million in 1979 on refinery improvements and a further \$80 million in 1980. The largest project so far is now under way at the Strathcona refinery (below) outside Edmonton. Here, an investment estimated early in 1981 at \$290 million will be spent over the next three years to upgrade the refinery to permit year-round operation at maximum capacity, as well as to expand production of asphalt from Cold Lake bitumen. The improved and expanded refinery will produce a greater proportion of high-grade products more efficiently, using substantial quantities of unconventional crudes.



An innovative carbon monoxide gas furnace will reduce sharply the future requirement for externally purchased natural gas at the Strathcona refinery. It will burn CO "regenerator" gas, a by-product of the refining process, to produce heat for transfer to process units.

Instrument panels (left) back up the computers that control blending, storage, and distribution of the Strathcona refinery's products into western Canada's complex pipeline network.

Financial and operating summary, 1980

Earnings from operations increased by \$1.5 million in 1980 to a record level of \$3.1 million as a result of further process efficiency improvements and record levels of petrochemical and fertilizer operations.

Capital expenditures increased by \$2.5 million in 1980, reflecting 50 percent growth in process efficiency and new petrochemical production line and the first increases in production of fertilizers and chemicals.

An application to construct a \$400-million nitrogenous fertilizer plant at Brundage, Alberta, was approved by the Alberta government.

An application was submitted to the Alberta Energy Development Commission for a \$700-million extension to the Peavine project. This project is a joint venture between Esso Chemical Canada and Alberta Energy Company Ltd.

Financial and operating statistics	1979	1980	Percent increase (decrease)
Financial	millions of dollars		
Earnings	68	81	19
Revenues	701	850	21
Capital expenditures	26	50	92
Capital employed	217	278	28
Sales	thousands of tonnes per year		
Petrochemicals	1036	1043	1
Agricultural chemicals	744	711	(4)
Building products	506	551	9
Total	2286	2305	1

The company manufactures and sells petrochemicals, plastic resins, fertilizers, building materials, and synthetic cordage through Esso Chemical Canada, a division of Imperial Oil Limited.

Operating environment

Market conditions were generally good throughout 1980 with export markets continuing to provide an important opportunity for sales growth, although some effects of the flat economy in Canada and the poor business conditions in the United States were evident in the second half of the year.

Canadian prices for petroleum and natural gas are below world levels and supplies are secure, particularly of natural gas. This presents a significant opportunity for the company to become a major world supplier of petrochemicals and plastic resins as well as fertilizers. The company is moving to take advantage of these opportunities with plans for investment in new or enlarged facilities to manufacture chemicals, plastics, and fertilizers. These investments are expected to contribute significantly to higher earnings in the future.

Petrochemicals and plastic resins

The growth in petrochemical sales in 1980 reflected market conditions, with chemical raw materials, intermediates, and solvents showing important gains. Sales of polyvinyl-chloride resins were about the same as 1979 levels due to a sharp sales decline in the second half of the year caused by the general downturn in North American economic activity.

During the year, work continued on the engineering for the proposed world-scale plant to produce low-density polyethylene and on the expansion of the polyvinyl-chloride plant, both at Sarnia. During 1980, a business team was formed to manage the division's participation in the world-scale Petalta project. The project represents a major new initiative in the upgrading of petrochemical raw materials in Alberta and will be managed jointly by Esso Chemical and Alberta Energy Company Ltd. The plants, at Bruderheim, Alta., will be operated by Esso Chemical. The materials to be produced by these new or expanded plants—resins, styrene monomer, ethyl benzene, benzene, and other aromatics—will be supplied to manufacturers of packaging, plastic pipe, wire insulation, synthetic rubber, flooring, vinyl siding, and other goods.

Fertilizer

The increase of 11 percent in fertilizer revenues in 1980 is due mainly to higher prices and increased export sales, since the effects of the spring drought in the Prairie region and high interest rates combined to reduce significantly western Canadian farmers' use of fertilizer. Prospects for fertilizer sales are excellent. Inventories of Canadian grain are low, world demand for it is high, and grain prices are up significantly.

New projects include a \$53-million expansion of the phosphate plant at Redwater, Alta., which will increase production by 150 000 tonnes per year and is scheduled to start up in 1982, and a new \$400-million, world-scale plant adjacent to the Redwater plants to produce nitrogenous fertilizer, slated for 1983. A further \$50 million is to be spent on distribution facilities in Saskatchewan and Manitoba. In 1980, the Alberta Cabinet approved an application for the use of natural gas as a feedstock for the new nitrogenous-fertilizer plant. This plant will be the largest of its type in North America and one of the largest in the world. About \$50 million of the total investment will be spent to make the plant 25 percent more efficient in its use of energy than older fertilizer plants.

Building materials and cordage

Residential construction activities in major markets for building materials in Canada and the United States were well below expectations due to the economic conditions. Building Products of Canada Limited, a wholly owned subsidiary, increased sales revenues from \$169 million to \$189 million in spite of the highly competitive market environment. Export sales increased from \$16 million to a new high of \$25 million.

With new residential construction in Canada expected to remain well below the peak of 1976, a stronger thrust towards the renovation market is developing. New distribution centres are being established, specifically designed to serve the applicators of the company's building-materials products and early results are encouraging.

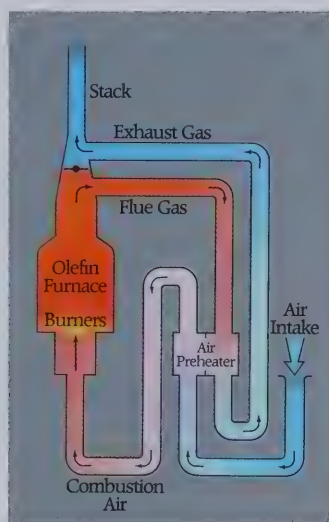
Sales of cordage in 1980 were affected by the spring drought in the Prairies and general economic conditions. Despite these factors, increased manufacturing efficiency and higher prices for its products enabled the company's Poli-Twine division to operate profitably in 1980.

Investments in chemicals

Because of their obvious importance, fuels and lubricants overshadow the other products derived from oil and gas. Petrochemical products such as the plastics now widely used in automobiles are often more energy-efficient to produce than metals and glass—and they also reduce the energy consumption of cars on the road. Fertilizers are another important category. Upgrading Canadian hydrocarbons to meet the needs of the agricultural industry creates more and better high-technology jobs, displaces imported fertilizers, and opens new opportunities to export fertilizer.



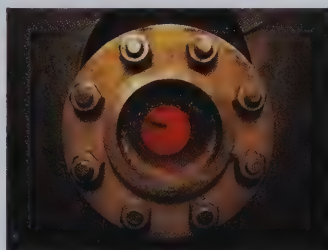
Esso Chemical Canada's complex at Redwater, Alta., has been producing nitrogenous and phosphatic fertilizers in adjacent plants since 1969. Rapidly increasing demand has now outstripped capacity and expansion plans now total over \$500 million. Phosphatic-fertilizer capacity will be increased by one-third, from 450 000 tonnes to 600 000 tonnes per year at a cost of \$53 million. A further \$400 million will be spent on a plant to produce ammonia and urea on land adjacent to the existing complex (foreground, below). The new units will all be completed by 1983.



This heat-recovery system is an example of Esso Chemical's continuing effort to conserve energy in production processes. By diverting exhaust gas to preheat incoming combustion air to high temperatures, the amount of energy needed by this olefin furnace has been substantially reduced.



Heat radiates off brickwork in the ammonia plant's primary reformer unit, where the reaction sequence begins.



An inspection port reveals ammonia reacting at about 900°C over platinum gauze in a nitric-acid converter at Redwater.

The company and the community

The company has a number of programs to protect the environment, conserve energy in its operations, participate in the development of its staff, increase safety at work, provide information to its customers and others on the safe handling of its products, and contribute to the well-being of the communities in which it operates.

Environmental protection

The company spent a total of \$154 million in 1980 on measures to study the effect of its operations on the natural environment and to reduce their impacts. This includes expenditures to reduce emissions into the air, to treat water, and to handle wastes.

Esso Chemical continued to improve its plans to respond to spills in the transportation of its chemicals in 1980. This division is also a member of the chemical industry's Transportation Emergency Assistance Plan. The company has also organized and trained teams to respond immediately to oil spills in any region of the country. It also cooperates with environmental groups established by the petroleum industry, particularly the Petroleum Association for Conservation of the Canadian Environment. The company is conducting a comprehensive assessment of the impact on the environment of all its operations in the production of oil in western Canada. This project is scheduled for completion in March, 1981.

At Cold Lake, Alta., the company is studying soils, vegetation, water quality, wildlife, and fisheries to establish a standard against which the effects of the oil-sands project there can be measured. The program will also work as an environmental early warning system so that the company can take corrective action before significant effects can occur.

Energy conservation

The company is committed to a program of using energy as efficiently as possible in its operations and has had an energy-management program in place since 1974. As a result, the company has achieved savings significantly greater than the industry average. In fuel-oil equivalent, the amount of energy consumed in company operations in 1980 was 887 000 m³ less than the amount required in 1972 for similar operations. The amount invested in these programs in 1980 was \$27 million.

Personnel

The company has a policy of filling key jobs from within the organization through regular appraisals of performance, including discussions with employees during which the ambitions, training needs, and advancement potential of employees are mutually identified. The system successfully provides the company with the talented managers and skilled professionals it needs.

Through company training programs, employees are encouraged and provided the opportunity to increase their knowledge and skill and to acquire a broad understanding of business and the environment in which it operates. Other programs assist employees in developing skills to further their careers. The company pays 75 percent of all costs of such approved courses. During 1980, the company paid more than \$100 000 on this program, an increase of 30 percent over the 1979 figure.

All operating segments continued to increase staff in 1980, hiring recent university graduates as well as persons with experience. Total employment increased by seven percent to reach a total of 16 029 at the end of the year. In Esso Chemical, a vice-president for western Canada and a vice-president of aromatics development with primary responsibility for Petalta were appointed in 1980 in response to the growing importance of the division's activity in western Canada. An office was also established in Edmonton. A vice-president for plastics was also appointed, reflecting the division's plans for growth in the plastics industry.

Safety at work

The company accepts the responsibility of providing a safe working environment and its safety programs involve employees in developing accident-free and efficient working habits. If operations in minerals are excluded, the frequency rate for disabling injuries in the company was 0.63 per 200 000 man-hours worked in 1980. This is the same as the rate for 1979 and is better than the industry average. In Esso Minerals, the rate was 10.13 in 1980.

Product safety

It is company policy to provide information on significant risks in the proper use of its products and the appropriate methods for control. All packaged goods are labelled with respect to hazards and information about bulk products is provided to customers, agents, and transporters.

In 1980, Esso Chemical completed a major revision of the product-information sheets it provides to customers. The new sheets are in a clearer format and provide the latest information on safe handling and health protection as well as technical data.

Community concerns

The company supports social projects that will have a long-term impact on society and be beneficial to a large segment of the local or national population. These include support for education, health care, agencies assisting disabled persons, care of the elderly, as well as support for the arts, amateur sports, and other community services. In 1980, the company contributed \$6 million to a variety of such projects. This is an increase of \$1 million over the 1979 figure.

As part of its centennial celebrations the company also commissioned a ballet and a symphonic work and sponsored a host of other activities from coast to coast. The seven episodes of *THE NEWCOMERS*, a series of films commissioned to mark the centennial, were shown on television during March of 1980. All issues of *The Review* in 1980 carried special features on various aspects of Canadian life as well as articles describing the company's operations since its inception. Employees celebrated the event with festivities at principal offices across the country.

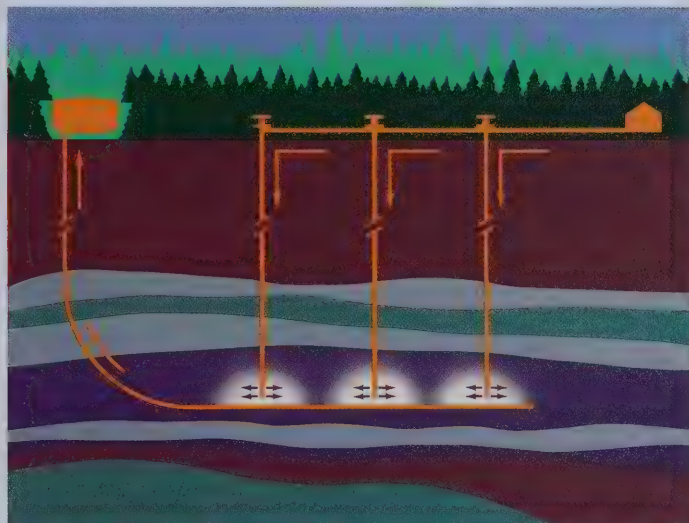
The company takes a special interest in the communities in which it operates and attempts to understand and respond to their needs and concerns. Prior to the submission of the application to the Alberta Energy Resources Conservation Board for the nitrogenous-fertilizer plant at Redwater, meetings were held with members of communities affected by the construction to describe the nature of the work and its anticipated impact on the communities and to determine local attitudes to the projects. Similar meetings have been held in connection with company plans in many other communities, including Cold Lake, Alta., and those communities concerned with the expansion of the Norman Wells crude-oil field.

Research

Research is vital to the petroleum industry. It supplies the new technology needed to locate, develop, and process energy resources. Today, it faces unprecedented challenges in developing resources in hostile environments. An equally intensive effort is required to find ways to produce high-quality products from unconventional feedstocks, often of inferior quality. Research programs in these areas are under way at company research centres in Sarnia, Montreal, and Calgary. Total research expenditures in Canada were almost \$37 million in 1979 and nearly \$47 million in 1980.

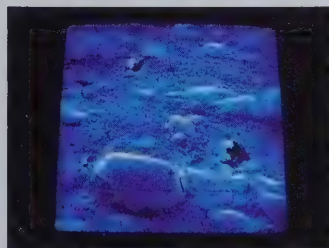


At Sarnia, Canada's oldest (1924) and largest petroleum research centre, Imperial researchers seek to improve energy efficiency in two vital ways: first, by maximizing product yields while minimizing energy consumption during refining, and second, by developing better products, such as longer-lasting, fuel-saving lubricants. The Sarnia research centre has expanded by 40 percent over the past three years, including a \$3.5-million new wing. A new \$25-million process and automotive research centre is planned for completion by 1983.



Research into horizontal wells for in-situ production of heavy crudes is among the innovations that have made the company the world leader in laboratory research and field pilot operations in heavy oil. The wells are drilled downwards into the oil-bearing formation and then turned sideways to run

along the base of the reservoir. Steam injected through other wells then softens the bitumen so it drains to the bottom of the reservoir, where it can be produced through the horizontal well. A pilot project of this type is now in operation at Cold Lake.



Electron microscopes capable of magnifications beyond the limits of optical instruments are used to study samples in the Calgary research centre. This is a sample of material used to protect high-temperature water-storage tanks at the Cold Lake project.

Summary of accounting policies

Principles of consolidation

The consolidated financial statements include the accounts of Imperial Oil Limited and its wholly owned subsidiary companies. All inter-company accounts and transactions have been eliminated. A list of subsidiary companies is shown on page 58.

The company's proportionate share of the revenues, expenses, assets, and liabilities of the Syncrude project are included in the accounts.

Inventories

Inventories of crude oil and products are recorded at cost, including the petroleum-compensation charge, using the first-in, first-out method, which is less than net realizable value.

Materials and supplies are recorded at the lower of cost and net realizable value.

Investments

The principal investments in companies other than subsidiaries are accounted for on the equity basis. Imperial's share of the net assets of these companies is recorded in the consolidated balance sheet as "Investments." Its share of their earnings after income taxes is included in the consolidated statement of earnings with "Investment income and other operating revenue."

Other investments are recorded at cost and income from them is recorded only as dividends are declared.

The ownership percentages of Imperial's principal investments are shown on page 58. The amount at which all investments are recorded is shown in note 9 on page 39.

Property, plant, and equipment

Property, plant, and equipment are recorded at cost and so carried until sold or otherwise disposed of.

Imperial follows the successful-efforts method of accounting for its exploration and development activities. Costs of exploration acreage are capitalized and amortized over the period of exploration or until a discovery is made. Costs of exploratory wells are capitalized until their economic status has been evaluated. Other exploration costs, including dry holes, are charged against earnings as incurred. All costs of development wells and successful exploration wells are capitalized.

The costs of maintenance and repairs are charged to current operating expense. Improvements that increase the service capacity of an asset or prolong its service life beyond that contemplated in the established rates of depreciation are capitalized.

Depreciation of plant and equipment is calculated using the straight-line method, based on the estimated service life of the asset. Amortization of the costs of capitalized producing wells and leases and of the capitalized costs of the Syncrude project and operating mines are calculated using the unit-of-production method.

Gains or losses on assets sold or otherwise disposed of are included in earnings.

Federal import compensation

Amounts received or claimed under the federal compensation program for oil imports are deducted from the cost of purchasing crude oil and products. Imperial has maintained its selling prices in accordance with federal government guidelines in order to be eligible for this compensation.

Taxes other than income taxes

The special gasoline excise tax and federal sales tax, which are payable at the point of sale, are included in "Commodity, property, and other taxes" in the consolidated statement of earnings. The petroleum-compensation charge levied by the federal government and payable on crude entering the refinery is included in "Purchases of crude oil and products."

Taxes levied on the consumer and collected by Imperial, primarily provincial taxes on motor fuels and the federal tax on exports of crude oil and petroleum products, are excluded from the consolidated statement of earnings.

Translation of foreign currencies

Long-term monetary liabilities payable in foreign currencies have been translated at the rates of exchange prevailing on Dec. 31. Exchange gains and losses arising on translation of long-term debt are amortized over the remaining term of the debt.

International accounting standards

The accompanying financial statements are prepared in accordance with accounting principles generally accepted in Canada and therefore conform in all material respects with international accounting standards.

Consolidated statement
of earnings for the years
1978, 1979, and 1980

	1978	1979	1980
	millions of dollars		
Revenues			
Crude oil (2) (3)	—	—	351
Natural gas	123	156	191
Petroleum products	3308	3872	4702
Chemicals	468	673	788
Investment income and other operating revenue (4) (9)	170	205	293
	4069	4906	6325
Expenses			
Exploration	116	210	253
Purchases of crude oil and products (2) (3)	1970	2197	2946
Operating (6)	437	643	830
Marketing and administration	476	520	594
Interest (4)	33	56	61
Depreciation and amortization	112	132	156
Commodity, property, and other taxes	364	345	392
	3508	4103	5232
Earnings before income taxes and unusual items	561	803	1093
Income taxes (5)	247	332	492
Earnings before unusual items	314	471	601
Unusual items, after income taxes (3)	—	22	81
Earnings for the year	314	493	682
	dollars		
Earnings per share (7)	2.41	3.78	4.71

The summary of accounting policies and notes to the financial statements are part of this statement.

Consolidated balance
sheet as at December 31,
1979 and 1980

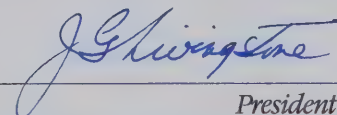
	1979	1980
	millions of dollars	
Assets		
Current assets		
Cash, including short-term deposits	249	154
Marketable securities at cost, which approximates market value	40	601
Loan to Exxon Corporation (8)	—	200
Accounts receivable	800	886
Inventories of crude oil and products	622	994
Materials, supplies, and prepaid expenses	106	106
	1817	2941
Investments and other long-term assets (9)	163	193
Property, plant, and equipment at cost, less accumulated depreciation and amortization (10)	2688	3110
Total assets	4668	6244
Liabilities		
Current liabilities		
Short-term notes	38	—
Accounts payable and accrued liabilities	659	658
Amounts owing to Exxon Corporation and affiliates (8)	95	59
Income and other taxes payable	125	239
	917	956
Long-term debt and other obligations (12)	611	618
Commitments and contingent liabilities (11)		
Total liabilities	1528	1574
Deferred income taxes (5)	700	881
Shareholders' equity (7) (13)		
Capital stock	300	1168
Earnings retained and used in the business		
At beginning of year	1797	2140
Earnings for the year	493	682
Dividends (dollars per share: 1979—\$1.15; 1980—\$1.40)	(150)	(201)
At end of year	2140	2621
Total shareholders' equity	2440	3789
Total liabilities, deferred income taxes, and shareholders' equity	4668	6244

The summary of accounting policies and notes to the financial statements are part of this statement.

Approved by the board



Chairman and chief executive officer



President

Consolidated statement of changes in financial position for the years 1978, 1979, and 1980

	1978	1979	1980
	millions of dollars		
Funds (a) were provided from			
Operations (b)	570	907	1127
Proceeds from sales of property, plant, and equipment	18	193	30
	588	1100	1157
Funds were used for			
Dividends	124	150	201
Reduction of long-term debt	10	16	13
	134	166	214
Funds remaining for investment	454	934	943
Investment			
Capital and exploration expenditures	535	879	861
Increase (decrease) in working capital other than funds	(67)	160	256
	468	1039	1117
Deficiency of funds before financing	14	105	174
Financing			
Capital leases	—	—	10
Long-term debt	—	292	—
Capital stock (7)	—	11	868
	—	303	878
Increase (decrease) in funds	(14)	198	704

(a) Funds represent cash, marketable securities, and short-term loan, less short-term notes.

(b) Funds from operations comprise earnings before exploration expenses, adjusted for depreciation, deferred income taxes, and other items not affecting funds.

The summary of accounting policies and notes to the financial statements are part of this statement.

To the shareholders of Imperial Oil Limited:

We have examined the consolidated statements of earnings and changes in financial position of Imperial Oil Limited for each of the three years in the period ended December 31, 1980 and the related consolidated balance sheet as at December 31, 1980 and 1979. Our examinations were made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these consolidated financial statements present fairly the results of operations and changes in financial position of Imperial Oil Limited for each of the three years in the period ended December 31, 1980 and its financial position at December 31, 1980 and 1979, in accordance with generally accepted accounting principles consistently applied.

Price Waterhouse + Co.

Chartered Accountants,
Toronto-Dominion Centre,
Toronto, Canada
February 19, 1981

1. Business segments	Natural resources		
	1978	1979	1980
	millions of dollars		
Revenues			
Sales to customers	123	156	542
Intersegment sales	643	875	659
Total	766	1031	1201
Earnings before income taxes and unusual items	419	381	341
Income taxes	199	166	157
Earnings before unusual items	220	215	184
Assets as at Dec. 31			
Segment assets	1514	2034	2391
Less current liabilities	269	309	185
Capital employed	1245	1725	2206
Depreciation and amortization	34	58	71
Capital and exploration expenditures	429	737	682

The company operates its business in the segments described in the "Operations reviews." The information in the table above is presented as though each segment were a separate

2. Crude-oil revenues

Revenues from sales of crude oil arise from the operations of buying and selling crude as a supplement to the company's own production, which is not sufficient to meet its own refining needs. These offsetting purchases and sales, which amounted to \$1021 million in 1980 (1979—\$1645 million; 1978—\$1519 million), have been excluded from both revenues and purchases of crude oil. The amounts reported as sales of crude oil in 1980 represent the change in operations reported in note 3.

69%
30%

94
70-
30

417

Petroleum products			Chemicals			Other			Consolidated		
1978	1979	1980	1978	1979	1980	1978	1979	1980	1978	1979	1980
millions of dollars											
3440	4019	4862	468	673	812	38	58	109	4069	4906	6325
108	144	172	21	28	38	-	-	-	-	-	-
3548	4163	5034	489	701	850	38	58	109	4069	4906	6325
124	300	563	32	122	149	(14)	-	40	561	803	1093
49	124	253	12	54	68	(13)	(12)	14	247	332	492
75	176	310	20	68	81	(1)	12	26	314	471	601
2073	2261	2502	235	296	373	229	269	1092	3900	4668	6244
549	755	716	39	79	95	202	(34)	74	908	917	956
1524	1506	1786	196	217	278	27	303	1018	2992	3751	5288
63	60	70	12	13	12	2	1	3	112	132	156
86	102	111	18	26	50	2	14	18	535	879	861

business activity. Intersegment sales are made substantially at prevailing market prices. In the consolidated figures reported here, all intersegment transactions have been eliminated.

3. Unusual items

On Aug. 30, 1979, the Alberta Energy Company Ltd. exercised its option to purchase 20 percent of the participants' interest in the Syncrude project. As a result, the company realized a gain of \$22 million, after income taxes of \$24 million, and its interest in the project was reduced from 31.25 percent to 25 percent.

In 1973, Alberta established the Alberta Petroleum Marketing Commission to control the marketing and distribution of crude oil in the province. On April 1, 1980, the commission began purchasing, at the wellhead, all crude produced from provincial Crown leases and the company has been recording net crude production from these leases as sales to the commission from that date. Consequently, the earnings from crude production are now recognized at the point of sale at the wellhead rather than after the crude has been processed and sold as refined products. As a result, the company recorded a one-time, non-cash increase in net earnings of \$81 million, after income taxes of \$45 million.

4. Interest	1978	1979	1980
millions of dollars			
Expenses			
Interest on long-term debt	29	37	55
Interest on short-term notes	2	16	2
Other	2	3	4
Total	33	56	61
Income	12	26	76

Notes to the financial statements

(continued)

5. Income taxes

The operations of the company are complex and the related income-tax interpretations, regulations, and legislation are continually changing. As a result, there are usually some tax matters in question. The company believes the provision made for income taxes is adequate.

Income taxes do not include taxes on unusual items in 1979 and 1980.

Summary of tax calculations	1978	1979	1980
	millions of dollars		
Earnings before income taxes, excluding equity companies' earnings (9)	542	779	1072
Income taxes	258	372	538
Basic corporate tax rate (percent)	47.6	47.8	50.2
Add			
Non-deductible Crown royalties and other similar payments to governments	172	185	185
	430	557	723
Deduct			
Resource allowance	99	101	111
Depletion allowance	68	98	79
Manufacturing and processing credit	5	13	26
Other	11	13	15
Income-tax expense	247	332	492
Effective tax rate (percent)	45.6	42.6	45.9
Summary of changes in deferred taxes			
Capital-cost allowance	47	37	76
Successful drilling	11	44	12
Land-acquisition costs	22	9	8
Drilling in progress	3	23	35
Other	(13)	10	5
Total	70	123	136
Current income taxes	177	209	356

6. Operating expense

Included in 1980 operating expense is \$62 million (1979—\$21 million; 1978—\$14 million) in preliminary design and engineering costs relating to the Cold Lake project.

7. Capital stock

Number of shares	Class A	Class B
Authorized	160 000 000	
Issued		
Dec. 31, 1979	126 310 745	4 335 156
Dec. 31, 1980	151 957 540	4 974 222

Each class of shares is voting, convertible into one another on a share-for-share basis, and ranks equally with respect to dividends and in all other respects.

By articles of amendment dated April 24, 1979, the provisions of the Class A and Class B convertible shares were amended to provide for the payment of the Class B dividend by way of a stock dividend of Class B convertible shares having a value substantially equivalent to the cash dividend on Class A convertible shares.

During the year, the company paid stock dividends totalling 163 845 (1979—112 946) Class B convertible shares and charged \$6 million (1979—\$4 million) to dividends.

The company offered to its shareholders of record at the close of business on May 16, 1980, the right to subscribe for Class A convertible shares of the company at the subscription price of \$33.00 per share in the ratio of one Class A convertible share for each five outstanding Class A or Class B convertible shares. A total of 25 988 068 Class A shares were issued as a result of that offering with cash proceeds amounting to \$858 million.

Earnings per share have been calculated on the monthly weighted average of shares outstanding during the year.

8. Transactions with Exxon Corporation and affiliated companies

The company entered into an agreement effective Sept. 8, 1980, to lend funds in Canadian dollars to Exxon Corporation at competitive Canadian interest rates. Advances of \$100 million were made in September and in October. All or part of the \$200 million is subject to repayment on demand following 10 days' notice and any outstanding balance is due on Sept. 4, 1981. The company earned interest income of \$6 million in 1980 from the loan.

In order to maintain supply to customers, crude oil, refined petroleum products, and petrochemicals are bought and sold between the company and Exxon Corporation and its affiliates. Technical and engineering services are performed and received and the company hires ocean tank vessels from affiliates of Exxon. The net cost to the company for all these transactions with Exxon and its affiliates was \$698 million (1979—\$530 million; 1978—\$487 million). The terms of these transactions were competitive or as favorable as terms that would be available with an unrelated party. All liabilities included in "Amounts owing to Exxon Corporation and affiliates" arose in the normal course of operations.

Under the company's rights offering, which is reported in note 7, Exxon Corporation acquired 18 186 319 shares, maintaining its ownership interest in the company of 69.6 percent.

9. Investments and other long-term assets

Investments are primarily in companies engaged in pipeline transportation of crude oil and petroleum products.

Investments	1978	1979	1980
	millions of dollars		
At equity value			
with quoted market value of			
\$142 million at Dec. 31, 1978;			
\$171 million at Dec. 31, 1979;			
\$143 million at Dec. 31, 1980	75	82	85
without quoted market value	19	20	20
At cost	8	8	18
Total investments	102	110	123
Other long-term assets	50	53	70
	152	163	193
Investments at equity value			
Earnings after income taxes	19	24	21
Dividends received	15	17	18

10. Property, plant, and equipment

	Cost		Accumulated depreciation and amortization	
	1979	1980	1979	1980
	millions of dollars			
Natural resources				
Exploration and production	1424	1725	413	469
Heavy oil	578	658	28	48
Minerals	39	79	1	2
	2041	2462	442	519
Petroleum products				
Refining	1063	1129	421	462
Marketing	483	497	217	226
	1546	1626	638	688
Chemicals	282	330	161	174
Other	98	117	38	44
Total	3967	4535	1279	1425

11. Commitments and contingent liabilities

The company has a number of contractual obligations and commitments payable under long-term agreements, all of which arose in the normal course of business. The total future liability for all of these agreements is not significant in relation to the consolidated financial position of the company.

A number of lawsuits are pending against the company. In the opinion of counsel, any financial liability that may result from these suits would not have a significant effect on the company's consolidated financial position.

Notes to the financial statements

(continued)

12. Long-term debt and other obligations

	1979	1980
	millions of dollars	
6 ⁷ / ₈ % Serial Debentures, 1972 issue, maturing Feb. 15, 1981	5	2
6 ³ / ₄ % Sinking Fund Debentures, 1967 issue, maturing Jan. 2, 1987	24	22
7 ³ / ₈ % Sinking Fund Debentures, 1968 issue, maturing Jan. 2, 1988	28	26
8 ¹ / ₂ % Sinking Fund Debentures, 1969 issue, maturing Aug. 15, 1989	15	14
7 ³ / ₄ % Sinking Fund Debentures, 1972 issue, maturing Feb. 15, 1992	35	34
10 ⁵ / ₈ % Sinking Fund Debentures, 1974 issue, maturing Aug. 15, 1994	94	88
9 ³ / ₄ % Sinking Fund Debentures, 1975 issue, maturing Feb. 15, 1995	98	93
9 ³ / ₄ % Sinking Fund Debentures, \$250 million U.S., 1979 issue, maturing Sept. 15, 2009	292	299
Total long-term debt	591	578
Amount due within one year	2	2
	589	576
Other obligations	22	42
	611	618

Sinking-fund and maturity payments required during the next five years are: 1981—\$2 million; 1982—\$11 million; 1983—\$19 million; 1984—\$19 million; 1985—\$19 million. Other obligations include receipts of \$23 million (1979—\$12 million) on take-or-pay gas contracts.

13. Stock options

The company has a stock-option plan for certain employees under which options for the purchase of Class A or Class B convertible shares of the company are still outstanding. No further options may be granted under this plan. Each option expires not later than 10 years from the date at which it was granted and all options expire at July 15, 1984.

As of Dec. 31, 1980, there were outstanding options to purchase 555 113 shares (1979—693 981) at prices ranging from \$22.95 to \$38.14 (1979—\$14.06 to \$38.14). Included are 121 940 shares under option to directors and officers (1979—148 236). Fair market value per share ranged from \$25.50 to \$42.375 at the dates the options were granted. All options may be exercised currently.

In 1980, options were exercised totalling 133 948 shares for \$4 million under the terms of the plan (1979—264 826 shares for \$7 million). The fair market value of shares on the dates the options were exercised totalled \$6 million (1979—\$10 million).

14. Long-term-incentive compensation plan

The company has a plan designed to recognize the efforts made by selected employees. It provides for additional compensation in order to attract and retain promising employees and reward them for high performance. Payments are not made currently but are deferred for periods up to a maximum of six years. They are based on the greater of an increase in the price of Class A convertible shares or an increase in the earnings per share of the company.

Estimated costs of the plan are amortized over its life. In 1980, the company charged \$9 million to earnings in respect of the plan compared to \$5 million in 1979 and \$3 million in 1978.

15. Employee retirement plan

The company's pension plan covers substantially all employees. The plan generally provides an annual pension of 1.6 percent of "final average earnings" multiplied by years of service, subject to certain age and service requirements. Costs of the plan are funded primarily by the company. During the year, \$60 million (1979—\$50 million; 1978—\$35 million) was charged to earnings.

Funding of the plan is based on triennial actuarial valuations, the most recent of which occurred as at Dec. 31, 1980. At that date, the market value of the pension-fund assets was \$650 million. This amount exceeded by \$97 million the accrued benefits earned by the participating employees. The actuarial present value of the estimated future benefits to be earned by the employees exceeds the plan's assets by \$33 million. This amount will be charged to earnings over a period of up to 15 years.

16. Research and development costs

Research and development costs of \$49 million (1979—\$33 million; 1978—\$25 million) were charged to expenses.

17. Oil and gas exploration and production activities

Capitalized costs (1)	Oil and gas		Syncrude		Total	
	1979	1980	1979	1980	1979	1980
	millions of dollars					
Property costs						
Proved	95	109	-	-	95	109
Unproved	186	233	-	-	186	233
Producing assets	915	1232	529	551	1444	1783
Support facilities	62	74	-	-	62	74
Incomplete construction	215	181	-	-	215	181
Total	1473	1829	529	551	2002	2380
Accumulated depreciation and amortization	431	490	10	25	441	515
Costs incurred	1978	1979	1980	1978	1979	1980
Property costs	52	108	66	-	-	-
Exploration costs	128	326	320	-	-	-
Development costs	89	207	204	125	22	22
Major project preconstruction costs	13	24	83	-	-	-
Production expenses	111	165	219	17	133	139
Depreciation, depletion, and amortization (excluding depreciation on support facilities)	29	41	48	-	10	15
Net revenues from the production of oil and gas (2)						
Sales to customers	111	142	519	-	-	-
Sales to consolidated affiliates	581	671	321	3	113	244
Total	692	813	840	3	113	244
Less production expenses	111	165	219	17	133	139
Net revenues from producing activities	581	648	621	(14)	(20)	105

(1) Property costs are payments for petroleum and natural-gas exploration rights. Proved represents areas where successful drilling has delineated a producing field. Unproved represents all other areas. Costs of incomplete construction include drilling and other costs relating to the commercial discovery of oil and gas reserves in the Beaufort/Mackenzie Delta region.

(2) Sales of crude oil to consolidated affiliates are valued at market, using posted field prices. Sales of natural-gas liquids to consolidated affiliates are valued at amounts estimated to represent prices equivalent to those that could be obtained in a competitive, arms-length, market. Total sales exclude the sale of natural gas and natural-gas liquids purchased for resale.

Notes to the financial statements

(continued)

Net reserves of crude oil and natural gas (unaudited)	Natural gas			Crude oil		
				Conventional and Cold Lake pilot		
	1978	1979	1980	1978	1979	1980
	billions of m ³			millions of m ³		
Net proved developed and undeveloped						
Beginning of year	38.6	37.9	42.4	108.9	106.4	100.1
Revisions of previous estimates and improved recovery	(0.2)	4.2	(2.3)	2.8	1.4	14.4
Purchase (sale) of minerals in place	0.6	—	(0.5)	0.1	—	—
Discoveries and extensions	1.1	2.7	1.0	2.1	0.4	0.3
Production	(2.2)	(2.4)	(2.1)	(7.5)	(8.1)	(7.0)
End of year	37.9	42.4	38.5	106.4	100.1	107.8
Net proved developed						
Beginning of year	25.8	24.8	33.8	100.5	95.2	89.9
End of year	24.8	33.8	31.1	95.2	89.9	85.7

All these reserves of crude oil and natural gas are located in Canada. Reserves of crude oil include condensate and natural-gas liquids. With the exception of the reserves of the Cold Lake pilot and Syncrude, all reserve estimates are determined by analysis of geological and engineering data, which has demonstrated with reasonable certainty that they are recoverable from known oil and gas fields under economic and operating conditions at Dec. 31 of each year end. The calculation of crude reserves at the Syncrude project is based on the company's participating interest in the Province of Alberta's production permit. Reserves of 16.8 million cubic metres for the Cold Lake pilot, which were added in 1980, are those reserves estimated to be recoverable from the existing experimental pilot plants.

The calculated net reserves of conventional crude oil, oil from the Cold Lake pilot, and natural gas are determined by deduction of the mineral owners' or governments' share or both and are calculated at the year's average royalty rate. Net reserves of Syncrude are based on an estimate of the average royalty rate over the project life, dictated by price increases indicated in the National Energy Program. This royalty rate may vary with production prices and cost. Syncrude production prior to 1980 was not subject to royalty.

			Crude oil		
Syncrude			Total		
1978	1979	1980	1978	1979	1980
millions of m ³					
—	56.4	46.8	108.9	162.8	146.9
0.3	2.5	(14.1)	3.1	3.9	0.3
—	(11.3)	—	0.1	(11.3)	—
56.3	—	—	58.4	0.4	0.3
(0.2)	(0.8)	(1.0)	(7.7)	(8.9)	(8.0)
56.4	46.8	31.7	162.8	146.9	139.5
—	56.4	46.8	100.5	151.6	136.7
56.4	46.8	31.7	151.6	136.7	117.4

Reserves data include proved reserves in the Northwest Territories and Yukon Territory but do not include reserves of crude oil and natural gas discovered in the Beaufort/Mackenzie Delta and the Arctic islands, nor the reserves contained in the oil sands other than those attributable to the Syncrude project and the reserves in the Cold Lake pilot area. Natural-gas reserves are calculated at a pressure of 101.325 kPa and at 15°C.

Amounts are reported in metric units. One cubic metre (m³) is equal to approximately 6.3 barrels or 35.3 cubic feet.

In October, 1980, the federal government introduced the National Energy Program which, among other proposals, contains a special tax on crude oil, natural gas, and natural-gas liquids as they are produced. The effect of this tax on the proved recoverable reserves could vary greatly depending on size, producibility, and operating costs of each field. Due to the complexity and individual nature of the calculations required, together with some degree of uncertainty as to the amount of the tax, the company has not reduced the estimates of crude oil, natural gas, and natural-gas liquids as at Dec. 31, 1980.

18. Reclassification

The financial statements reflect the reclassification of certain items in 1978 and 1979 to conform with the 1980 presentation. This reclassification does not affect earnings for those years.

19. Supplemental information (unaudited)

The company has security holders resident in the United States and may wish to use capital markets in that country in the future. Consequently, supplemental information that is in conformity with the reporting practices of companies in the United States is included. This information includes a reconciliation of the differences between the accounting principles generally accepted in Canada and the United States. The information appears on pages 51 to 55.

Five-year summary

	1976	1977	1978	1979	1980
	millions of dollars				
Revenues					
Crude oil	—	—	—	—	351
Natural gas	82	104	123	156	191
Petroleum products	2495	2852	3308	3872	4702
Chemicals	345	406	468	673	788
Other products	71	75	81	94	108
Other operating revenues	40	42	42	45	70
Total operating revenues	3033	3479	4022	4840	6210
Equity in earnings of principal investments	18	19	19	24	21
Investment and other income	29	30	28	42	94
	3080	3528	4069	4906	6325
Expenses					
Exploration	81	96	116	210	253
Purchases of crude oil and products	1341	1591	1970	2197	2946
Operating	349	376	437	643	830
Marketing and administration	395	429	476	520	594
Interest	34	33	33	56	61
Depreciation and amortization	97	103	112	132	156
Commodity, property, and other taxes	323	357	364	345	392
	2620	2985	3508	4103	5232
Earnings before income taxes and unusual items	460	543	561	803	1093
Income taxes	197	250	247	332	492
Earnings before unusual items	263	293	314	471	601
Unusual items, after income taxes	—	—	—	22	81
Earnings for the year	263	293	314	493	682
Funds from operations	509	550	570	907	1127

Financial summary

Financial information by segments	1976	1977	1978	1979	1980
	millions of dollars				
Revenues					
Natural resources	506	589	766	1031	1201
Petroleum products	2667	3048	3548	4163	5034
Chemicals	360	425	489	701	850
Other	35	37	38	58	109
	3568	4099	4841	5953	7194
Earnings before unusual items					
Natural resources	177	185	220	215	184
Petroleum products	48	76	75	176	310
Chemicals	19	16	20	68	81
Other	19	16	(1)	12	26
	263	293	314	471	601
Capital employed					
Natural resources	811	1076	1245	1725	2206
Petroleum products	1442	1433	1524	1506	1786
Chemicals	176	169	196	217	278
Other	109	94	27	303	1018
	2538	2772	2992	3751	5288

Capital and exploration expenditures	1976	1977	1978	1979	1980
	millions of dollars				
Natural resources					
Exploration	110	114	180	434	387
Production	24	31	89	191	143
Heavy oil	187	179	138	62	83
Minerals	9	11	22	50	69
	330	335	429	737	682
Petroleum products					
Refining	23	32	54	69	76
Marketing	26	29	32	33	35
	49	61	86	102	111
Chemicals	13	12	18	26	50
Other	2	4	2	14	18
Total	394	412	535	879	861

Financial statistics	1976	1977	1978	1979	1980
	millions of dollars				
Working capital					
Current assets	1166	1236	1450	1817	2941
Less current liabilities	575	613	908	917	956
Total	591	623	542	900	1985
Current ratio	2.0	2.0	1.6	2.0	3.1
Total assets	3113	3385	3900	4668	6244
Capital employed					
Long-term debt and other obligations	343	336	329	611	618
Deferred income taxes	477	540	577	700	881
Shareholders' equity	1718	1896	2086	2440	3789
Total	2538	2772	2992	3751	5288
Earnings as a percentage of					
Average capital employed	11.5	11.6	11.4	15.2	15.7
Average shareholders' equity	16.0	16.2	15.8	21.8	21.9
Debt as a percentage of capital employed	13.0	11.7	10.5	15.7	10.9
Taxes and royalties charged against income					
Income taxes	197	250	247	332	492
Federal sales tax	119	146	161	168	211
Special gasoline excise tax	168	174	164	133	127
Petroleum-compensation charge	—	—	8	70	223
Property and other taxes	36	37	39	44	54
Crown royalties	291	355	427	507	513
Total	811	962	1046	1254	1620

Five-year summary

(continued)

Operating summary

Land holdings—gross/net	1976	1977	1978	1979	1980
	millions of hectares (1)				
Oil and gas					
Western provinces					
Conventional	1.1/0.6	1.2/0.8	2.5/1.0	2.9/1.0	5.3/1.4
Cold Lake	0.1/0.1	0.1/0.1	0.1/0.1	0.1/0.1	0.1/0.1
Syncrude	*/*	*/*	*/*	*/*	*/*
Other oil sands	0.6/0.2	0.6/0.2	0.6/0.2	0.6/0.2	0.6/0.2
	1.8/0.9	1.9/1.1	3.2/1.3	3.6/1.3	6.0/1.7
Canada lands					
Beaufort/Mackenzie Delta, Northwest Territories, and Yukon Territory	5.2/5.0	4.9/4.7	3.5/3.3	2.9/2.5	2.6/2.4
Arctic islands	10.7/2.4	15.0/2.6	14.1/2.4	10.4/1.7	9.1/1.6
Atlantic offshore	13.4/12.0	9.0/7.6	6.5/5.2	7.2/5.8	6.1/5.2
	29.3/19.4	28.9/14.9	24.1/10.9	20.5/10.0	17.8/9.2
Total	31.1/20.3	30.8/16.0	27.3/12.2	24.1/11.3	23.8/10.9
Minerals					
Coal	0.3/0.3	0.3/0.3	0.3/0.3	0.3/0.3	0.4/0.4
Uranium	0.2/0.2	0.5/0.3	0.5/0.4	0.4/0.3	0.3/0.2
Base metals	0.1/0.1	0.1/0.1	0.1/0.1	0.1/0.1	0.5/0.5

*Less than 100 000 hectares

(1) Gross hectares includes the interests of others; net hectares excludes the interests of others.

Wells drilled—gross/net	1976	1977	1978	1979	1980
Western provinces					
Exploratory					
Conventional	18/11	42/30	102/58	163/61	151/50
Cold Lake, Athabasca, Peace River	25/8	16/16	50/40	27/20	72/40
Development					
Conventional	25/11	67/40	119/85	267/116	139/58
Cold Lake, Athabasca, Peace River	22/22	—/—	12/12	21/21	26/26
Canada lands					
Beaufort/Mackenzie Delta, Northwest Territories, Yukon Territory, Arctic Islands, and Atlantic offshore					
Exploratory	6/5	6/4	5/3	6/3	5/1
Development	—/—	1/1	1/*	4/3	6/4
Total					
Exploratory	49/24	64/50	157/101	196/84	228/91
Development	47/33	68/41	132/97	292/140	171/88
* less than 1					
Proved reserves—gross/net (2)					
Crude oil (millions of m ³) (3)	175.0/116.7	165.0/108.9	217.1/162.8	200.4/146.9	198.3/139.5
Natural gas (billions of m ³)	66.8/43.0	62.1/38.6	61.2/37.9	62.0/42.4	56.7/38.5
Production—gross/net (2)					
Crude oil (thousands of m ³ /d) (3)					
Conventional	35.8/22.2	35.0/21.3	34.7/20.6	37.5/22.3	30.6/18.4
Cold Lake	0.9/0.8	0.8/0.8	0.8/0.8	1.0/0.9	0.9/0.9
Syncrude	—/—	—/—	0.5/0.5	2.2/2.2	3.2/2.8
Total	36.7/23.0	35.8/22.1	36.0/21.9	40.7/25.4	34.7/22.1
Natural gas (millions of m ³ /d)	9.6/5.2	9.2/5.2	8.9/6.0	9.8/6.6	8.2/5.6
Natural-gas liquids purchased for resale					
—gross (thousands of m ³ /d)	0.8	0.8	0.7	1.0	1.0
Natural gas purchased for resale					
—gross (millions of m ³ /d)	1.1	1.1	0.8	0.6	0.7

(2) Gross reserves and production of crude oil include only the amount directly owned, produced, and sold by the company before deduction of the mineral owners' and/or governments' share. Net production of crude oil is after deduction of the mineral owners' and/or governments' share.

Net production of natural gas is the amount remaining after gas purchased for resale and the mineral owners' and/or governments' share have been deducted from total sales.
(3) Crude oil includes natural-gas liquids.

Five-year summary

(continued)

Operating summary

(continued)

Crude-oil supply and utilization (thousands of m ³ /d) (3)	1976	1977	1978	1979	1980
Net production of crude oil (2)	23.0	22.1	21.9	25.4	22.1
Net purchases from others (4)					
Domestic	20.3	26.3	28.4	31.0	32.6
Imported	24.0	19.2	18.9	15.2	16.4
Crude oil processed at company refineries	67.3	67.6	69.2	71.6	71.1
Refinery capacity at Dec. 31	80.9	81.2	77.9	76.8	76.7
Refinery capacity utilization at Dec. 31 (percent)	83	83	89	93	93

Sales volumes

Petroleum products (thousands of m ³ /d)					
Gasolines	26.1	26.0	27.2	28.0	27.8
Middle distillates	23.9	22.6	23.4	23.6	22.7
Heavy fuel oils	8.5	7.4	7.6	7.6	6.5
Lubricants and other products	11.7	12.8	13.1	15.2	14.4
Total	70.2	68.8	71.3	74.4	71.4

Natural gas (millions of m ³ /d) (5)	10.7	10.3	9.7	10.4	8.9
--	------	------	-----	------	-----

Chemicals (thousands of tonnes per year)					
Petrochemicals	777	862	804	1036	1043
Fertilizer	487	609	657	744	711
Building materials	455	446	519	506	551
Total	1719	1917	1980	2286	2305

Employees

Number at Dec. 31	14 753	14 136	14 328	14 966	16 029
Total payroll and benefits (millions of dollars)	339	354	384	487	594
Payroll and benefits per employee (dollars) (6)	21 600	23 700	26 100	30 100	34 600

(2) Gross reserves and production of crude oil include only the amount directly owned, produced, and sold by the company before deduction of the mineral owners' and/or governments' share. Net production of crude oil is after deduction of the mineral owners' and/or governments' share. Net production of natural gas is the amount remaining after gas purchased for resale and the mineral owners' and/or governments' share have been deducted from total sales.

(3) Crude oil includes natural-gas liquids.

(4) The figures shown for crude purchases include changes in inventories during the year.

(5) Sales to outside customers include purchases of natural gas for resale.

(6) Payroll and benefits per employee is calculated from total payroll and benefits for full-time employees divided by their monthly average number.

Shareholder and investor-information summary

	1976	1977	1978	1979	1980
Share ownership, Class A and B					
Average number outstanding, weighted monthly (thousands)	130 209	130 220	130 248	130 421	144 880
Shares held in Canada at Dec. 31 (thousands)	31 971	31 422	31 714	29 182	33 629
Number of shareholders at Dec. 31					
Total	45 807	45 985	46 962	44 188	48 442
Resident in Canada	40 025	40 335	41 241	38 149	41 064
Shares traded, Class A (thousands)	12 604	9 513	13 677	24 839	43 441
Share prices, Class A					dollars
High	26	23 ³ / ₄	25 ¹ / ₄	46 ¹ / ₄	57 ¹ / ₂
Low	18 ¹ / ₂	18 ¹ / ₈	18 ¹ / ₄	24 ⁷ / ₈	30 ³ / ₈
Close at Dec. 31	22 ¹ / ₈	21 ¹ / ₂	25 ¹ / ₈	44 ¹ / ₄	32 ⁷ / ₈
Earnings per share	2.02	2.25	2.41	3.78	4.71
Funds from operations per share	3.91	4.22	4.38	6.95	7.78
Earnings as a percentage of average shareholders' equity	16.0	16.2	15.8	21.8	21.9
Price/earnings ratio, Class A at Dec. 31 (percent)	10.95	9.56	10.43	11.71	6.98
Dividends					
Total paid (millions of dollars)	106	116	124	150	201
Per share (dollars)					
Cash	0.816	0.888	0.95	1.15	1.40
Stock	—	—	—	0.90	1.40
As a percentage of earnings	40	40	39	30	30

Accounting for the effects of inflation and changing prices

The high rate of inflation experienced in recent years has eroded the purchasing power of the dollar and has had a significant effect on the financing of company operations. The reported earnings and financial position of the company do not reflect these effects of inflation and changing prices since they are based on historical costs. Although historical costs provide a basic measure of financial results, matching current revenues with the original cost of assets tends to overstate earnings in times of high inflation.

There is general agreement in the business community that the effects of inflation on financial results should be reported in addition to conventional financial results. However, there is no consensus as to how this reporting can be accomplished in the most meaningful manner. The Canadian Institute of Chartered Accountants (CICA) issued an exposure draft in December, 1979, outlining a proposal for current-cost accounting. The CICA is considering comments on the exposure draft and a further publication is expected in 1981. The Financial Accounting Standards Board (FASB) in the United States issued Statement 33 in 1979 requiring certain U.S. corporations to restate historical earnings in constant dollars and current costs as a supplement to the primary financial statements.

Under the CICA's current-cost proposal, two significant adjustments to historic earnings for depreciation and cost of goods sold are required. These adjustments, which are similar to those required by the FASB, reflect the current costs of replacing fixed assets and inventory used in the business. They show how current costs of the assets have increased over original costs. The information in the following table presents the effect of these adjustments on the company's reported earnings for 1980. Constant-dollar information is also provided to allow comparison of the two methods.

The information illustrates the effect general inflation and specific price changes are having on the company's earnings. In addition, since corporate income taxes are not adjusted for inflation, the effective corporate income-tax rate of 45.9 percent on historical earnings becomes an effective tax rate of 58.5 percent for earnings restated on a constant-dollar basis and 81.2 percent under current-cost accounting.

	constant dollar	current cost
	millions of dollars	
Earnings as reported (page 33)	682	682
Adjustments		
Depreciation	(142)	(261)
Cost of goods sold	(89)	(205)
Adjusted earnings	451	216
Capital employed		
As reported	5288	5288
Adjusted	7232	8747
Return on average capital employed (percent)		
As reported	15.7	15.7
Adjusted	7.7	3.2

The methodology underlying the constant-dollar restatement has the advantage of being relatively easy to calculate and understand. It provides financial information in dollars of equivalent purchasing power and matches current costs with current revenues. Furthermore, if all companies adopted the constant-dollar method, the same price index would be used and competitive comparisons could be more easily made. However, all commodities are not affected equally by inflation and each firm purchases various commodities at different times and in different proportions. For example, the actual price of crude oil during 1980 increased by 32 percent, well above the 11-percent increase in the general level of prices as measured by the consumer price index issued by Statistics Canada. Constant-dollar restatements do not recognize these differences, which can result in significant variations from restatements under current-cost accounting, as the table shows.

Current-cost accounting attempts to deal with inflation-caused differences in each industry by estimating the effect of changing prices on assets used to produce goods and services. However, these estimates involve judgments and assumptions that could vary from company to company, with the result that corporate comparisons could not be made with any degree of assurance. The assumption is also made that each company would replace its existing production facilities in kind, although it is unlikely they would do this because of improvements in technology and market changes.

Although the constant-dollar and current-cost results reported here are experimental, they do provide an approximation of the effects of inflation on the reported financial results of the company.

Presentation of financial statements

The financial statements of the company have been prepared in accordance with accounting principles generally accepted in Canada. In the company's case, these principles conform in all material respects with those in the United States except for the unusual items described in note 3 to the financial statements. Under United States accounting principles, the unusual items would be reported in the consolidated statement of earnings before "Earnings before income taxes," and would not be shown net of the applicable income taxes. This presentation does not affect the amounts shown as earnings for the year.

Management discussion and analysis

Management's discussion and analysis of the company's financial condition and results of operations are incorporated in the president's message on pages 4 to 7 of this report.

Shareholder and investor information

General summary of tax consequences affecting foreign security holders

Cash dividends paid by the company to shareholders not resident in Canada and who are resident in the United States, the United Kingdom, France, Switzerland, and most of the other countries with which Canada has an income-tax convention, are usually subject to Canadian non-resident withholding tax at a 15-percent rate. This is subject to reduction to 10 percent if the company has the requisite degree of Canadian ownership. The company had that requisite degree in 1980. Stock dividends in the form of Class B shares paid to a Class B shareholder not resident in Canada on that class of shares are usually not subject to Canadian non-resident withholding tax unless more than 10 percent of the shares of that class are owned by the shareholder alone or together with other related persons.

In most cases, there is no Canadian tax on gains arising from the sale of shares or debt instruments owned by security holders who are neither resident in nor carry on business in Canada.

Interest paid by the company on its outstanding debentures to a non-resident of Canada with whom the company is dealing at arm's length is not subject to Canadian withholding tax if the debenture was originally issued after June 23, 1975. Interest paid by the company to debenture holders not resident in Canada on debentures issued before that date is usually subject to withholding tax.

No estate taxes or succession duties are imposed by the government of Canada or by the governments of any of the provinces of Canada except the province of Quebec. In the province of Quebec, no succession duties are payable with respect to securities of the company physically situated outside the province of Quebec if the person to whom they are transmitted is domiciled and resident outside the province of Quebec.

Shareholders	Shareholders of record at Dec. 31, 1980	Residency (percent)		
		Canada	Other	Total
Class A	47 434	85	15	100
Class B	1 337	83	17	100
	48 771			

(continued)

Quarterly financial and stock-trading data

The stock of Imperial Oil Limited is listed on the Montreal, Toronto, and Vancouver stock exchanges and is admitted to unlisted trading on the American Stock Exchange. The high and low Toronto prices for Class A shares and the number of shares traded on all the above exchanges are shown. The Class B shares generally trade at the same price as Class A shares.

The average number of outstanding shares included in the calculation of earnings per share is weighted on a monthly basis. As a result, the sum of the quarterly earnings per share does not necessarily equal the yearly earnings per share.

	1979 three months ended				1980 three months ended			
	Mar. 31	June 30	Sept. 30	Dec. 31	Mar. 31	June 30	Sept. 30	Dec. 31
	millions of dollars							
Revenues	1124	1143	1206	1433	1361	1473	1587	1904
Expenses, including income taxes	1035	1035	1094	1271	1209	1325	1406	1784*
Unusual items	—	—	22	—	—	—	81	—
Earnings	89	108	134	162	152	148	262	120
	dollars							
Earnings per share	0.68	0.83	1.03	1.24	1.16	1.10	1.67	0.76
Dividends per share (declared quarterly)	0.25	0.25	0.30	0.35	0.35	0.35	0.35	0.35
Share prices								
High	29¾	39	45¼	46¼	57½	46¾	47⅞	45¾
Low	24⅞	26⅞	33¾	35⅞	36½	35⅞	37¼	30⅞
Close	28¼	38¼	42¾	44¼	41⅝	44½	41	32⅞
	thousands							
Shares traded	4634	6484	6917	6804	11 499	10 895	9815	11 232

* Fourth-quarter expenses include \$62 million in Cold Lake project costs.

Oil and gas producing activities

Estimated future net revenues

The company cautions that the following calculation of the present value of future net revenues from estimated production of proved reserves does not necessarily represent the fair market value of conventional oil and gas properties nor future cash flows. The valuation does not include the value of exploratory properties and probable reserves. Neither does it include anticipated future price increases of oil and gas and anticipated increases of development and production costs. The valuation excludes the company's activities related to extraction of upgraded crude oil from the Syncrude project.

	Proved developed	Proved undeveloped	Total proved
	millions of dollars		
Estimated future net revenues from estimated production as of Dec. 31, 1980 (before income taxes)			
For the year 1981	509	(19)	490
For the year 1982	430	(63)	367
For the year 1983	424	(114)	310
Remainder for succeeding years	6118	1440	7558
Total before income taxes	7481	1244	8725
Total after income taxes	3429	713	4142
Present value of estimated future net revenues discounted at 10 percent			
As of Dec. 31, 1980			
before income taxes	2748	178	2926
after income taxes	1294	92	1386
As of Dec. 31, 1979			
before income taxes	2991	401	3392
after income taxes	1266	206	1472
As of Dec. 31, 1978			
before income taxes	3387	442	3829
after income taxes	1524	242	1766

Estimated future net revenues are computed by applying the year-end prices of crude oil, including condensate and natural-gas liquids, and natural gas to the estimated future production of proved oil and gas reserves, less the estimated future expenditures based on current costs to be incurred in developing and producing the proved reserves. A domestic crude-price increase of \$6.29 per cubic metre, effective Jan. 1, 1981, has not been included in estimated future revenue.

Estimated future income taxes are computed by applying the current statutory tax rates to the estimated taxable income for each year. Taxable income is based on estimated future net revenues adjusted to take into account differences from standard accounting practices permitted under income-tax regulations in effect at the end of the year. The effect of the federal government's proposed tax on petroleum and gas revenue (effective Jan. 1, 1981) and the effect of the discontinuance of depletion on development drilling is excluded.

(continued)

Summary of changes in present value of estimated future net revenues and reserve-recognition accounting (RRA)

The following table shows a reconciliation for 1979 and 1980 of the pretax present value of proved developed and undeveloped reserves at the beginning and the end of each year under the column headed "Net present value of proved reserves." The column headed "Results of oil and gas producing activity" shows the company's after-tax results for the year on the basis of RRA. The table excludes the company's activities related to the extraction of upgraded crude oil from the Syncrude project.

RRA departs significantly from historical accounting practices. Under RRA, a dollar valuation of proved reserves is computed as described in "Estimated future net revenues" and earnings are recognized when proved reserves are discovered or the valuation of proved reserves changes.

	Net present value of proved reserves		Results of oil and gas pro- ducing activity	
	1979	1980	1979	1980
	millions of dollars			
Additions to estimated proved reserves—gross	95	34	95	34
Revisions of estimates of prior years				
Changes in reserves (a)	(875)	(956)	(875)	(956)
Changes in prices (b)	476	636	476	636
Interest factor (c)	369	314	369	314
	65	28	65	28
Costs incurred, including impairments (d)			(384)	(484)
Present value of estimated future development and production costs (e)	(25)	(17)	(25)	(17)
Expenditures that reduced estimated future development costs	171	144		
Net sales of oil and gas (after production costs)	(648)	(621)		
	(437)	(466)	(344)	(473)
Provision for income taxes (f)			43	315
Net change or net amount	(437)	(466)	(301)	(158)
Balance, beginning of year	3829	3392		
Balance, end of year	3392	2926		
Earnings from operations for oil and gas activities on the basis reported in the primary financial statements			233	151

(a) Changes in reserves, which reduced 1979 and 1980 results before income taxes by \$875 million and \$956 million respectively, were due to the effect of changes in estimates of future development costs, changes in estimates of future production, and revisions of proved reserves determined in prior years. The revision to future development costs to maintain producibility resulted in a reduction of approximately \$330 million in 1979 before income taxes. In 1980, the revision to future development costs resulting in a reduction of approximately \$140 million was due mainly to an increase in cost because of inflation and an upward revision of development costs for the Norman Wells field. The change in estimates of future production, reflecting lower production capability, resulted in a reduction of about \$135 million in 1979 and \$680 million in 1980. The remainder of the reduction of \$410 million in 1979 is mainly due to a downward revision of reserves.

(b) Changes in prices contributed \$476 million in 1979 and \$636 million to 1980 results. This reflects the increase in prices for crude oil, natural gas, and natural-gas liquids during each year. The effect of an increase of \$6.29 per cubic metre in crude oil, which went into effect on Jan. 1, 1981, has not been included.

(c) Interest factor, amounting to \$369 million in 1979 and \$314 million in 1980, is due to an increase in the estimated present value of proved reserves because realization of future net revenue is one year closer.

(d) Costs incurred, including impairments expensed for RRA of \$384 million in 1979 and \$484 million in 1980 for conventional oil and gas, include costs of exploratory drilling, geological and geophysical costs, costs of carrying and retaining undeveloped properties, development costs incurred to produce reserves determined during the year, and amortization of exploratory costs. Land-acquisition costs incurred during 1979 and 1980 of \$108 million and \$66 million respectively were deferred.

Included in total costs incurred were \$27 million in 1979 and \$145 million in 1980 for Cold Lake, which include pre-construction costs associated with the Cold Lake commercial project. The 1980 costs for Cold Lake also include the net book value of the capitalized cost of pilot operations at Dec. 31, 1979.

(e) Present value of estimated future development and production costs of \$25 million and \$17 million in 1979 and 1980 respectively represent the present value of estimated future expenditures to be incurred in developing and producing reserves added during each of the years for which revenue is reflected in "Additions to estimated proved reserves-gross."

(f) Income taxes for 1980 were computed by first applying current statutory tax rates to the estimated present value of future taxable income to be generated from producing proved reserves as of the end of the year and deducting the similarly computed amount as of the beginning of the year. To this amount was added the provision for income tax payable for the year. Income taxes for 1979 were computed similarly. The income-tax reductions of \$43 million in 1979 and \$315 million in 1980 are 12.5 percent and 66.6 percent of pretax loss respectively. The lower rate in 1979 is mainly due to a high proportion of non-deductible costs, which reduce the loss for taxable purposes under RRA.

Directors, officers, and board committees

Directors

J. A. Armstrong
Chairman and chief executive officer, Imperial Oil Limited
J. B. Buchanan
President, British Columbia Packers Ltd. (fish and seafood)
P. Des Marais II
President, Pierre Des Marais Inc. (printing and lithography)
J. W. Flanagan
Senior vice-president, Imperial Oil Limited
M. Kovitz
President, Murko Investments Ltd. (property and livestock)
J. G. Livingstone
President, Imperial Oil Limited
D. D. Loughheed
Senior vice-president, Imperial Oil Limited
W. A. Macdonald
Partner, McMillan, Binch (barristers and solicitors)
T. H. Thomson
Senior vice-president, Imperial Oil Limited
W. J. Young
Senior vice-president, Imperial Oil Limited

Board of directors

The board has ten members, of whom six are employees of the company and four have their principal employment outside Imperial. V. Sirois retired on Sept. 1, 1980, and T. H. Thomson was appointed a director to replace him.

The board meets monthly to consider subjects of major corporate significance. These include financial and social performance, investment decisions, strategic plans, and corporate policies, in addition to other matters on which the board is legally required to act. In 1980, attendance at board meetings averaged 87 percent.

Board committees

Meetings of board committees are usually scheduled following board meetings. Attendance at all board committees in 1980 averaged 88 percent.

Audit committee

Chairman: W. A. Macdonald
Vice-chairman: P. Des Marais II
Members: J. B. Buchanan
M. Kovitz
J. G. Livingstone
W. J. Young

The committee meets a minimum of six times a year to review the company's financial statements, accounting practices, and business and financial controls. It also recommends the appointment of auditors and reviews their fees. The shareholders' auditor, Price Waterhouse & Co., and the company's internal auditor attend and participate in all meetings.

Contributions committee

Chairman: M. Kovitz
Vice-chairman: P. Des Marais II
Members: J. A. Armstrong
J. B. Buchanan
W. A. Macdonald

The committee meets at least twice a year to examine policies and programs related to the company's contributions to enhance the quality of Canadian life. An annual budget, which includes support for education, health, welfare, community services, sports, and culture, is recommended to the board for adoption.

Board compensation committee

Chairman: P. Des Marais II
Vice-chairman: J. B. Buchanan
Members: J. A. Armstrong
M. Kovitz
W. A. Macdonald

The committee meets at least twice a year to decide on the appropriate compensation for senior vice-presidents or their equivalent and to recommend to the board specific compensation for the chairman and president. It also reviews overall policy on corporate compensation and the process by which the future managers of the company are identified and selected.

Officers

Imperial Oil Limited

Chairman of the board and chief executive officer:

J. A. Armstrong

President:

J. G. Livingstone

Senior vice-presidents:

J. W. Flanagan

D. D. Loughheed

T. H. Thomson

W. J. Young

Vice-presidents:

W. E. Beacom, *comptroller*

M. G. Handford, *marketing*

R. E. Landry, *external affairs*

A. M. Lott, *treasurer*

D. H. MacAllan, *corporate affairs and general secretary*

A. G. Moreton, *president, Esso Chemical Canada*

G. A. Rogers, *general counsel*

P. Stauf, *natural resources coordination*

W. A. West, *logistics*

Esso Resources Canada Limited

Chairman of the board:

J. A. Armstrong

President and chief executive officer:

A. R. Haynes

Executive vice-president:

C. R. Evans

Senior vice-president:

J. H. Hamlin

Vice-presidents:

G. L. Haight, *production*

W. J. C. Mann, *finance and administration, and treasurer*

G. H. Thomson, *heavy oil*

R. A. F. Wilkinson, *exploration*

G. J. Willmon, *president, Esso Minerals Canada*

Subsidiaries, principal investments, and investor information

Imperial Oil Limited

The company was incorporated under the Canada Joint Stock Companies Act, 1877 on Sept. 8, 1880. Its head office is at 111 St. Clair Avenue West, Toronto, Canada, M5W 1K3. Telephone (416) 968-4111.

Imperial Oil Limited is active in all phases of the petroleum industry in Canada. The company explores for and produces crude oil and natural gas, is a major participant in a commercial oil-sands facility to produce upgraded crude oil, and refines and markets petroleum products. It also explores for and develops minerals and manufactures and sells petrochemicals, fertilizers, and building materials.

The terms company and Imperial as used in this report sometimes refer not only to Imperial Oil Limited but collectively to all of its subsidiary companies or divisions or to any one or more of them.

Subsidiary companies

W. H. Adam, Ltée, Ltd.
Atlas Supply Company of Canada Limited
Building Products of Canada Limited
Canada Wide Mines Ltd.
Champlain Oil Products Limited
Delta Rope & Twine Limited
Devon Estates Limited
86129 Canada Ltd.
E S F Limited
Esso of Canada Limited
Esso Resources Canada Limited
446259 Ontario Limited
The Imperial Pipe Line Company, Limited
Maple Leaf Petroleum Limited
Mongeau & Robert Cie Ltée
95185 Canada Limited
95269 Canada Limited
Nisku Products Pipe Line Company Limited
Northwest Company, Limited
102335 Canada Ltd.
J. P. Papineau Ltd.
Renown Building Materials Limited
Les Restaurants Le Voyageur Inc.
Servacar Ltd.
Stanmount Pipe Line Company Ltd.
Winnipeg Pipe Line Company Limited

Principal investments in other companies, not consolidated

	Percentage of ownership
Alberta Products Pipe Line Ltd.	30.0
Interprovincial Pipe Line Limited	32.7
Montreal Pipe Line Limited	32.0
Moraine Properties Ltd.	50.0
Rainbow Pipe Line Company, Ltd.	33.3
Tecumseh Gas Storage Limited	50.0
Trans Mountain Pipe Line Company Ltd.	8.6
Williamsport Properties Limited	50.0

Transfer offices

Shares of Imperial Oil Limited may be transferred at the following offices: head office of Imperial Oil Limited; principal offices of Montreal Trust Company at St. John's, Charlottetown, Halifax, Saint John, Montreal, Toronto, Winnipeg, Regina, Calgary, and Vancouver; and Morgan Guaranty Trust Company of New York.

Annual meeting

The annual meeting of shareholders will be held at 11:00 a.m., Tuesday, April 21, 1981, in the Canadian Room, Royal York Hotel, Toronto.

Investor information

Investors may obtain information to assist them in evaluating the company's operations and results, including the annual report on Form 10-K filed with the United States Securities and Exchange Commission, from the Manager, Investor Relations, Imperial Oil Limited, at 111 St. Clair Avenue West, Toronto, Canada, M5W 1K3. Changes of address or inquiries about shares and dividends may be sent to the Assistant Secretary, Shareholder Affairs, at the same address.

Les rapports de la Compagnie Pétrolière Impériale Ltée aux actionnaires sont publiés en français. Veuillez écrire à la division des Relations avec les actionnaires, Compagnie Pétrolière Impériale Ltée, 111, avenue St. Clair ouest, Toronto, Canada, M5W 1K3.

The base maps shown on pages 11, 14, 15, 18 and 19 derive, with permission, from *The National Atlas of Canada/L'Atlas national du Canada*, Department of Energy, Mines and Resources, Ottawa 1981.



